



Department of  
**Environment &  
Conservation**

*Celebrating*  
**25** Years  
*1991-2016*

# 25 Years of Environment & Conservation

*Important Work Making Tennessee  
a Better Place to Live, Work and Play*

# Created in 1991, still going strong in 2016



*Gov. McWherter receives Tennessee State Parks hat from first TDEC Commissioner J.W. Luna*



*TDEC charter employees from the Johnson City Field Office were here from the beginning*

***“Environmental issues are of such importance that the state of Tennessee should address these issues through a single agency.”***

***- Gov. McWherter, February 1991***

# Strategies & priorities change, Our Mission is constant

**TDEC exists to enhance the quality of life for citizens of Tennessee and to be stewards of our natural environment by:**

- **Protecting and improving the quality of Tennessee's air, land, and water through a responsible regulatory system**
- **Protecting and promoting human health and safety**
- **Conserving and promoting natural, cultural, and historic resources**
- **Providing a variety of quality outdoor recreational experiences**

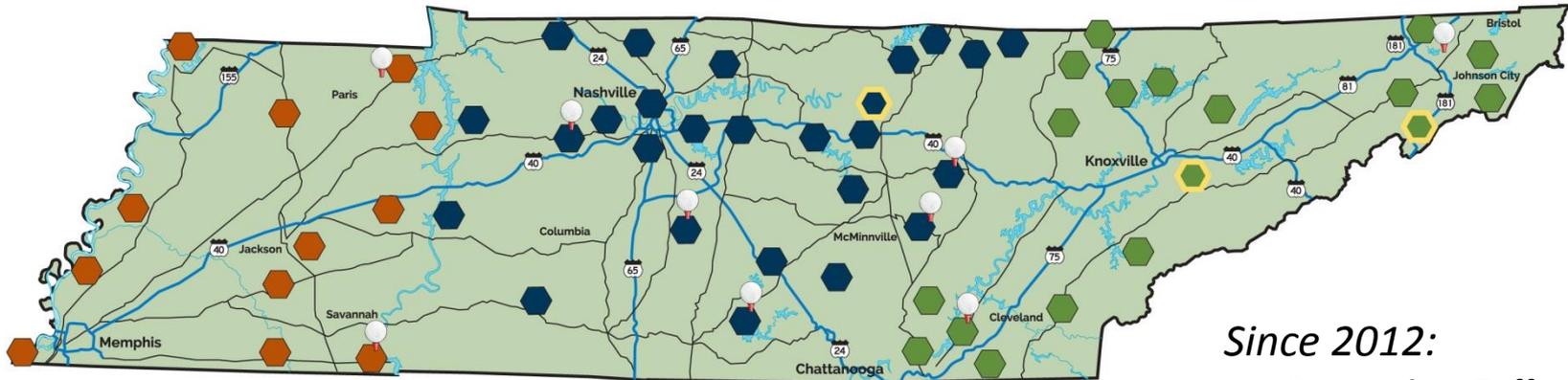


# TDEC Brings Resources

- **Tennessee State Parks**
  - Tourist Development
  - Economic Impact
  - Diverse Outdoor Recreation Opportunities
- **Grants & Loans**
- **Outreach, Assistance and Recognition**
- **Regulatory Expertise**
  - Permitting Guidance and Execution

# Supporting Outdoor Recreation and Rural Economic Development

*Fun and Adventure, Naturally!*



## 56 Tennessee State Parks

- ❑ >190,000 acres
- ❑ Millions of visits annually
- ❑ \$725 million in direct annual economic impact
- ❑ Supporting ~12,000 jobs across Tennessee

*Since 2012:*

- Cummins Falls
- Seven Islands
- Rocky Fork

...on the Web at [www.tnstateparks.com](http://www.tnstateparks.com)

# TDEC Grants & Loans

- TDEC grants & loans assist local communities with:
  - Development and maintenance of drinking water and wastewater infrastructure (State Revolving Fund)
  - Solid waste reduction and disposal
  - Used oil
  - Recycling equipment
  - Energy efficiency and renewables (Clean TN Energy Grants & Pathway Lending EE Loan Program)
  - Parks, greenways and trails

*For more information and what grants are currently accepting applications, visit our website:*

[www.tn.gov/environment/topic/about-grants](http://www.tn.gov/environment/topic/about-grants)

# Brownfield Redevelopment

- **EPA Brownfield Grants**

- Chattanooga & Hamilton County, *Alton Park, Chattanooga Creek*
- Saltillo (Hardin County)
- Union City
- Knox County
- Shelby County

- **Success Stories**

- Jackson Kayak (White County)
- First Tennessee Park (Nashville Sounds Stadium)
- Nashville Riverfront, the Gulch and SoBro
- Brookside Mills (Knoxville)
- Shelby County Greenline
- Jackson Gas & Light

[www.tn.gov/environment/article/rem-success-stories-ongoing-projects](http://www.tn.gov/environment/article/rem-success-stories-ongoing-projects)

# Sustainable Practices

- **Pharmaceutical Take Back Program**
  - 84 of 95 counties (152 locations)
- **Tennessee Green Star Partnership**
  - Recognizing Environmental Leadership Beyond Compliance
- **Mapping Project (Waste and Recycling Streams)**
  - Food
  - Automotive
  - Building Products
  - Furniture
- **Materials Exchange Project**
  - Memphis Materials Marketplace Pilot – *creating viable end market*
- **Food Manufacturing Industry**
  - Assistance to demonstrably reduce waste and prevent pollution

# Energy Programs

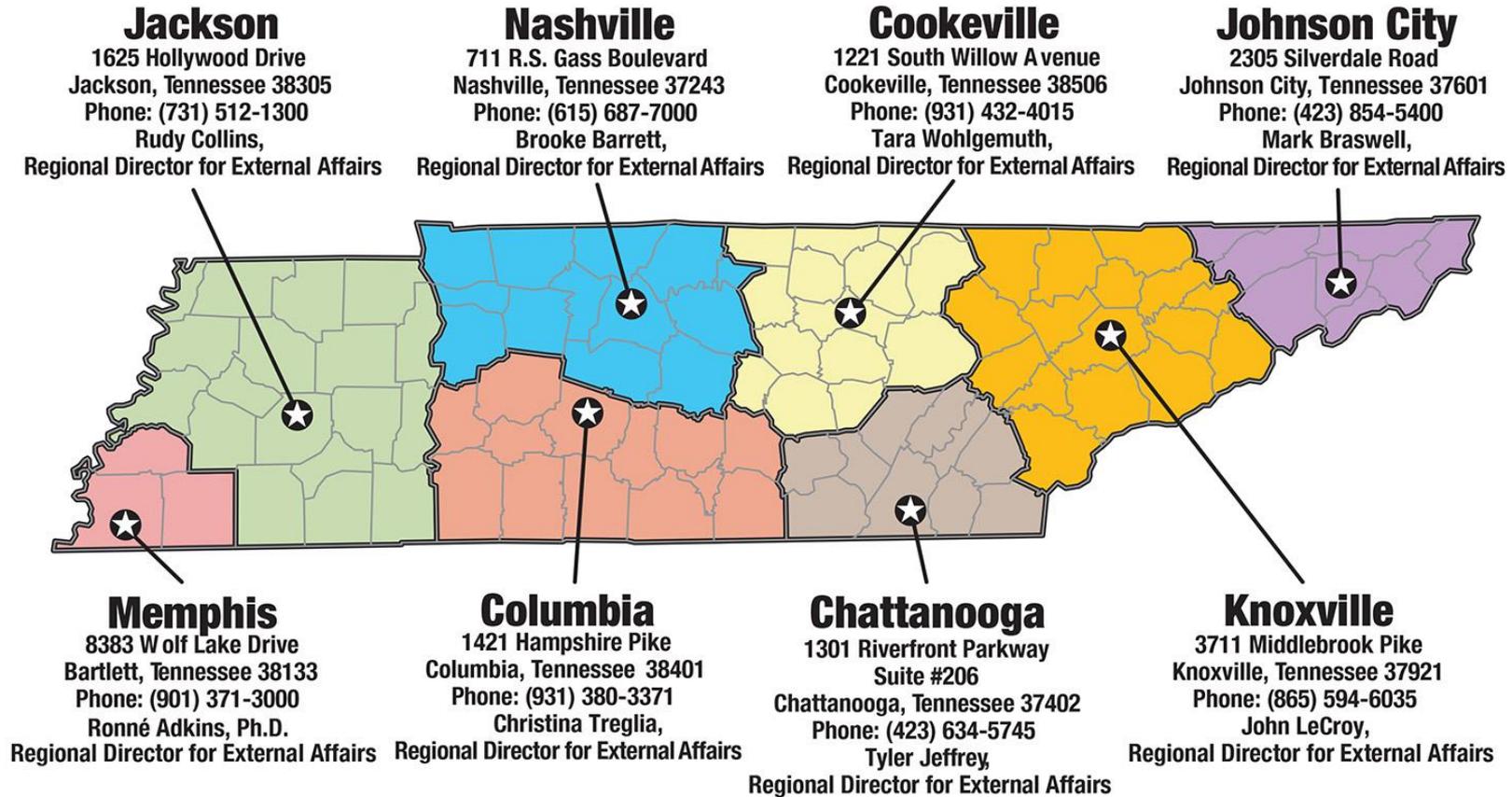
- **U.S. DOE State Energy Program**
  - Relationship with DOE and other state energy programs
- **Energy Assurance (ESF-12 Function)**
- **EmPower TN Professional Energy Manager Program**
- **Energy Efficiency & Renewable Energy Project Financing**
  - Pathway Lending Energy Efficiency Loan Program
  - Qualified Energy Conservation Bonds
- **Technical Assistance for Local Governments**
  - **Level 1 Energy Audits**
  - **Energy efficiency & energy mgmt for water/wastewater facilities**
- **Education and Outreach**
  - Energy Camp For K-12 Educators
  - Tennessee Energy Education Initiative



*Power. Positive. Progress.*

# External Affairs - Where We Are

Regional Directors for External Affairs are located in each TDEC Environmental Field Office

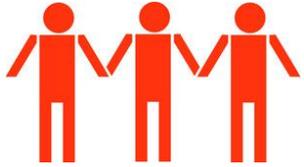




TM

# Results of Our Work

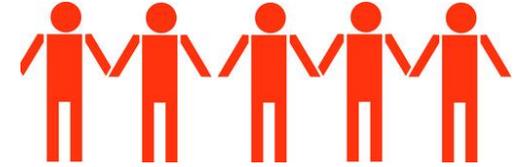
# Then and Now: Tennessee by the numbers



## POPULATION

<u>1991</u>	<u>2015</u>
4.9 million	6.6 million

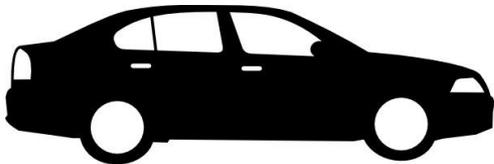
↑ **35%**



## ECONOMIC OUTPUT (GDP)

<u>1991</u>	<u>2014</u>
\$101.2 billion	\$297.2 billion

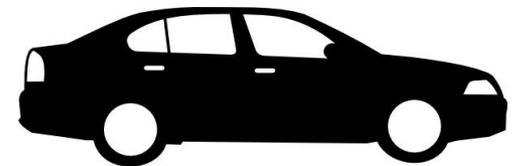
↑ **193%**



## VEHICLE MILES TRAVELED

<u>1990</u>	<u>2013</u>
46.7 billion	71.1 billion

↑ **52%**



# Tennessee is a prosperous, growing State

- **Tennessee's Environment Quality**
  - Air
  - Water
  - Waste
  - Land & Natural Resources
- **Reflects Progress and Improvement**

**Our Core Belief: Economic growth and environmental protection are not mutually exclusive. It's not "either/or" it's "and."**

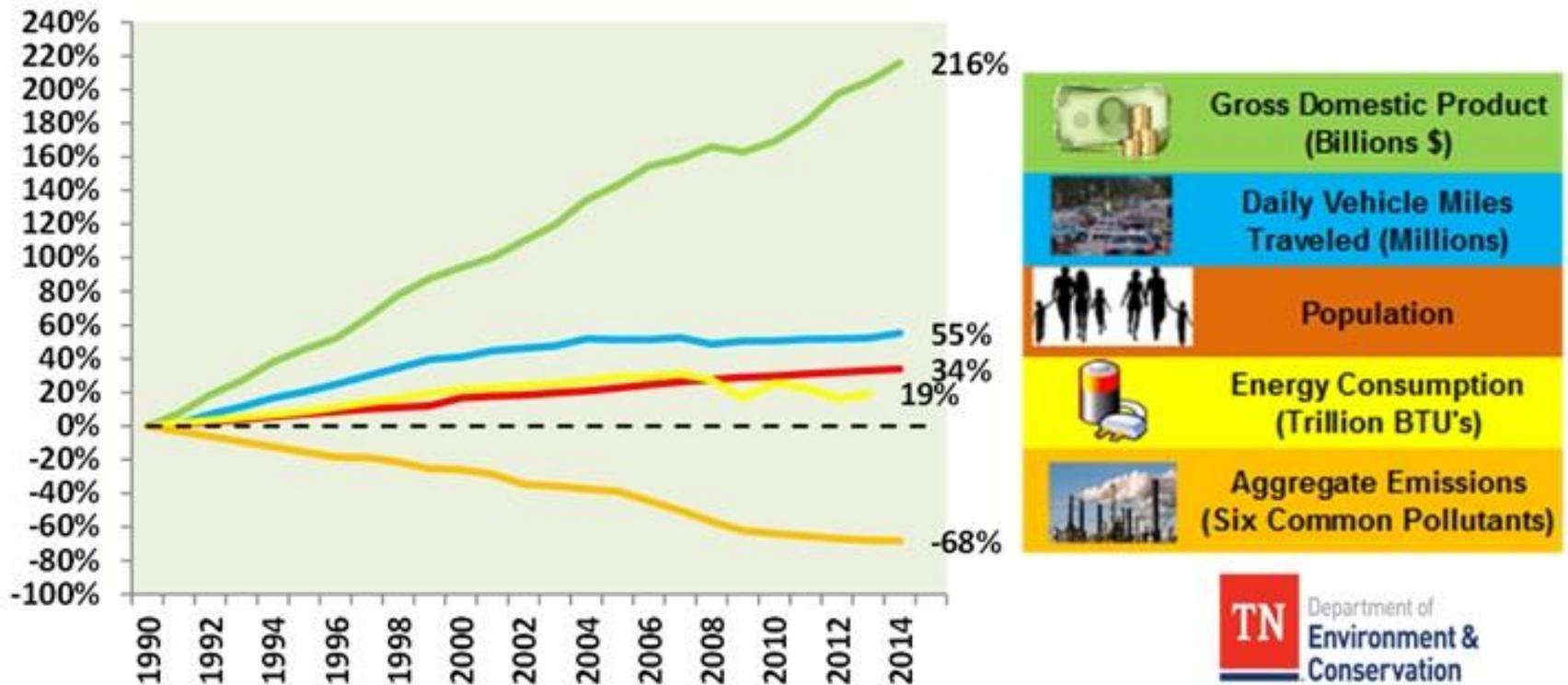


TM

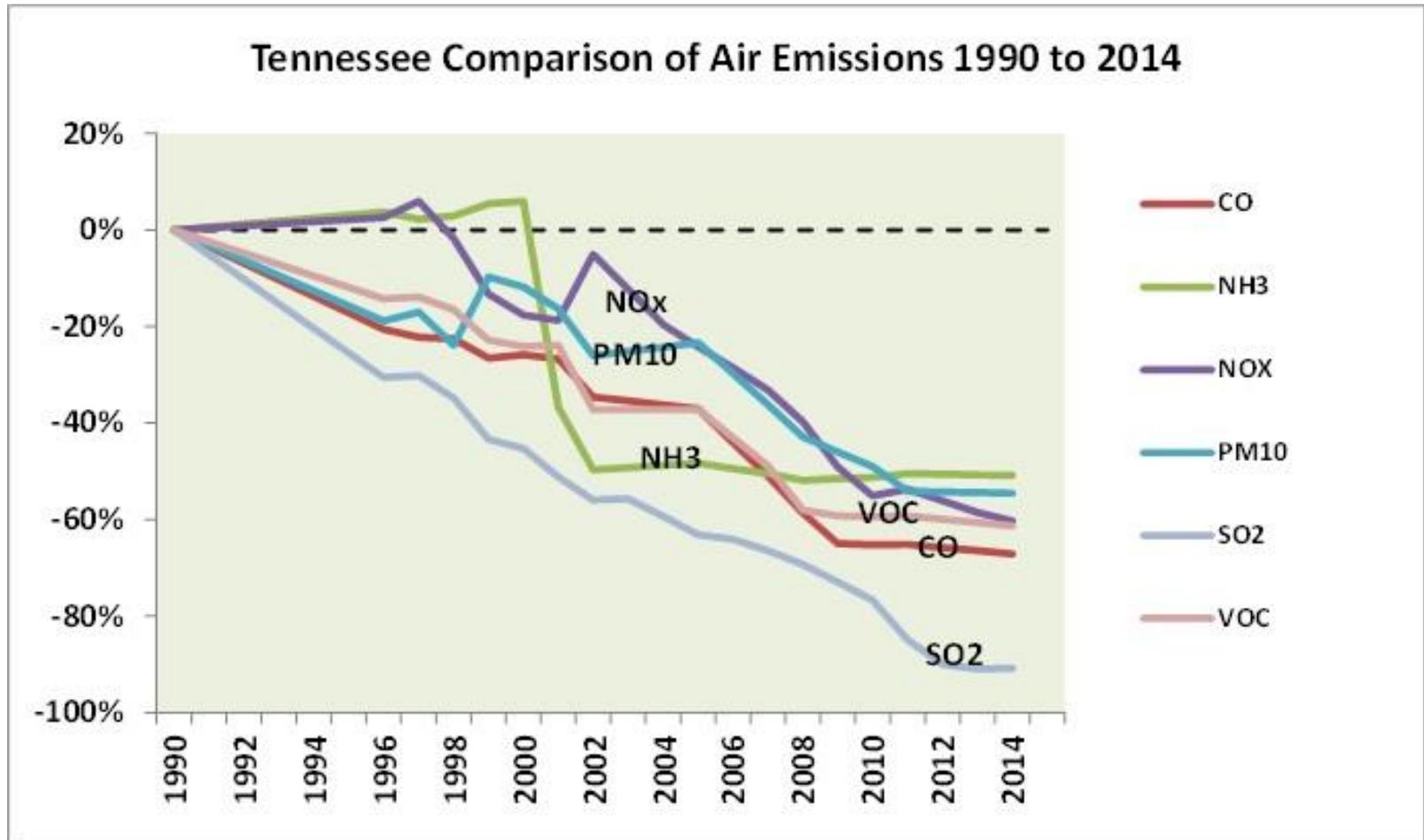


# Tennessee: Growing State with Cleaner Air

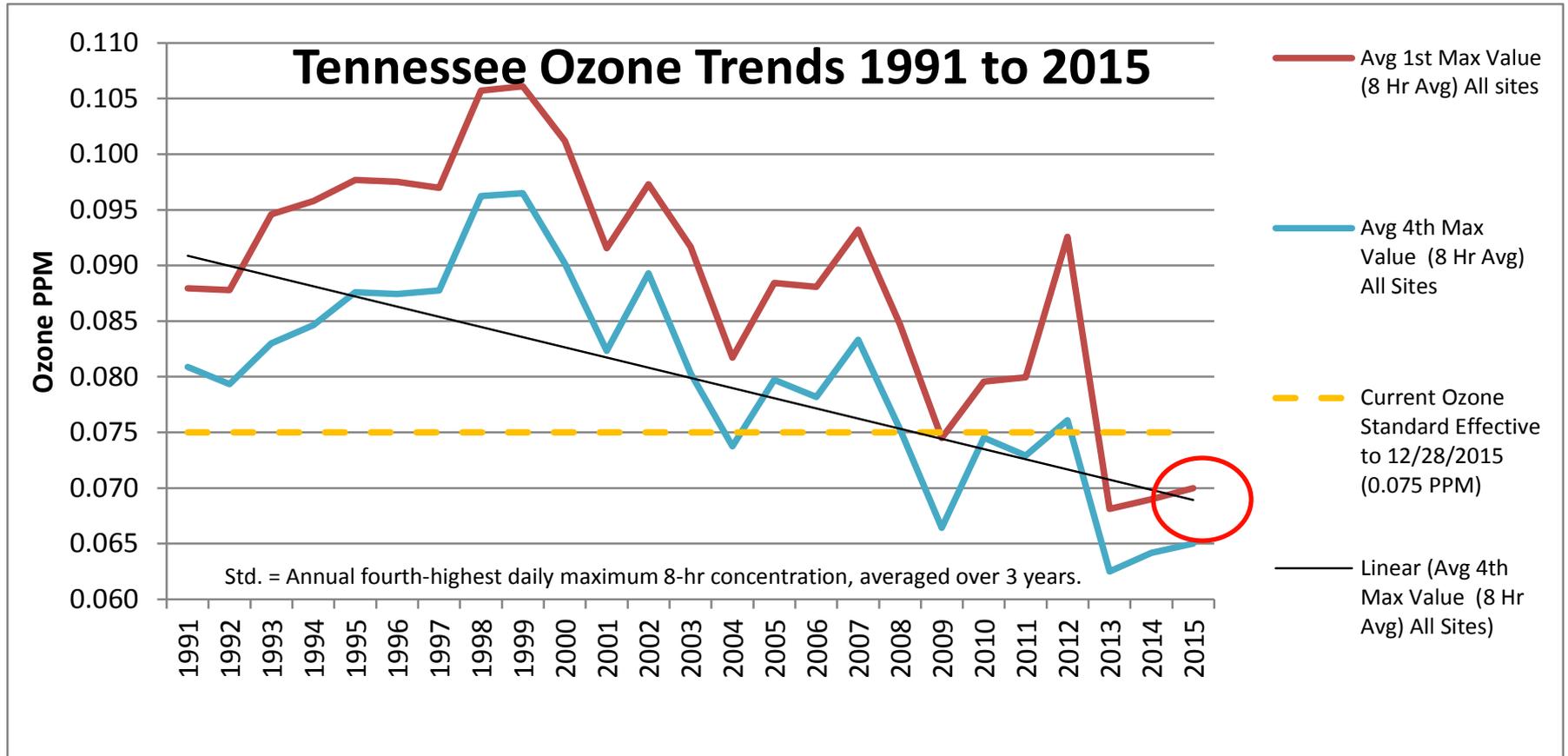
Tennessee Comparison of Growth Areas and Emissions 1990 to 2014



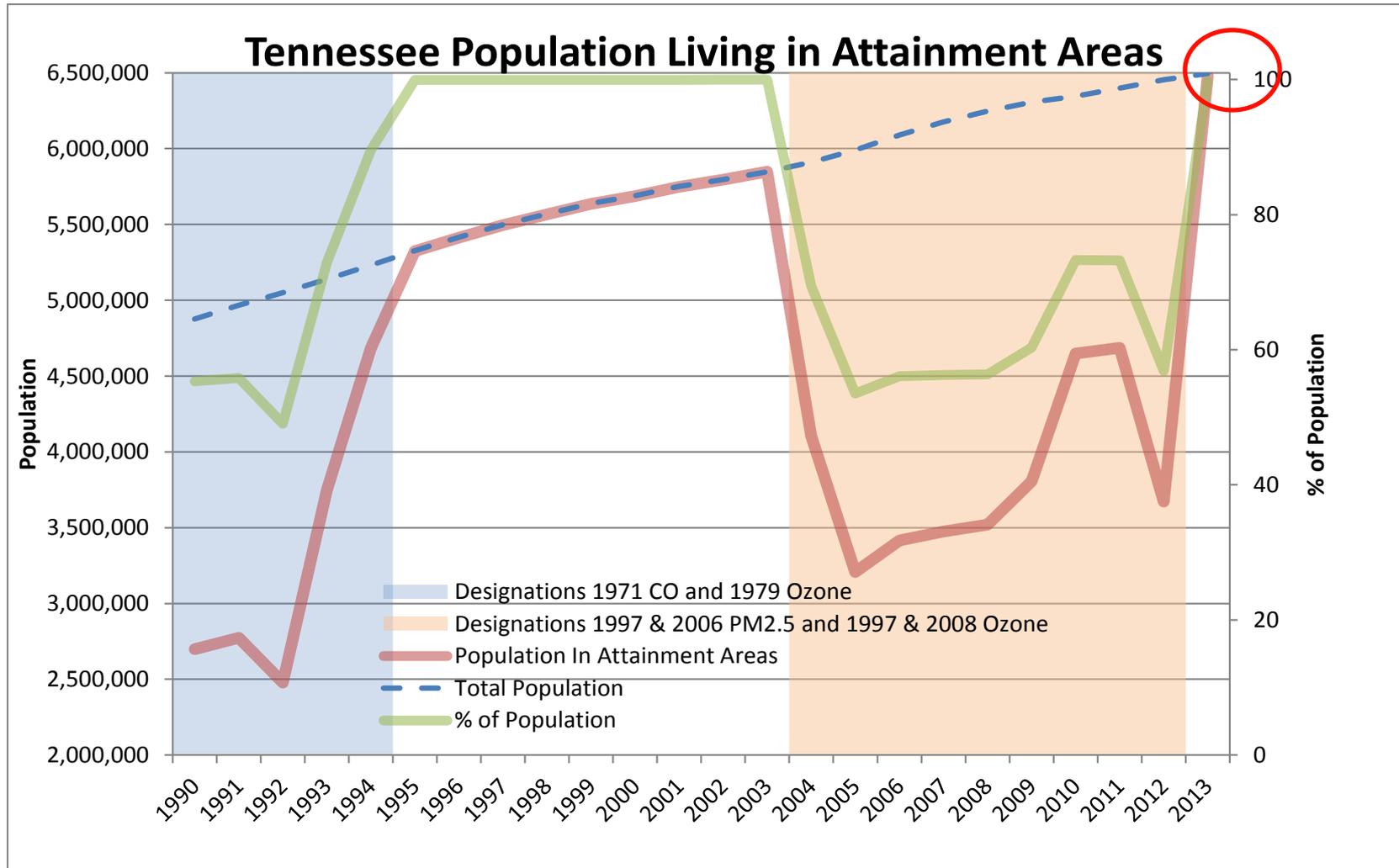
# Reductions across all common pollutants



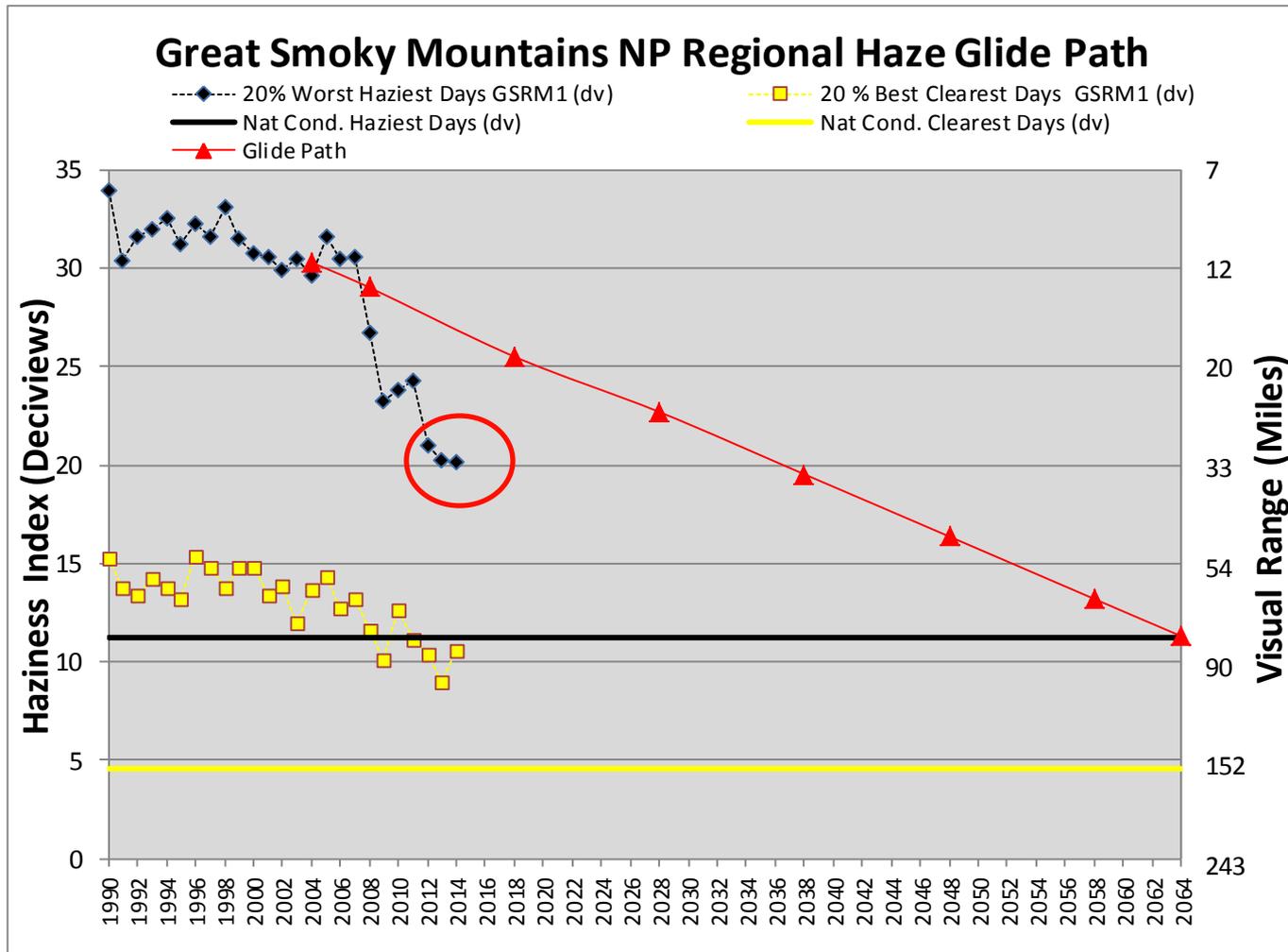
# Ozone decreasing over time in Tennessee



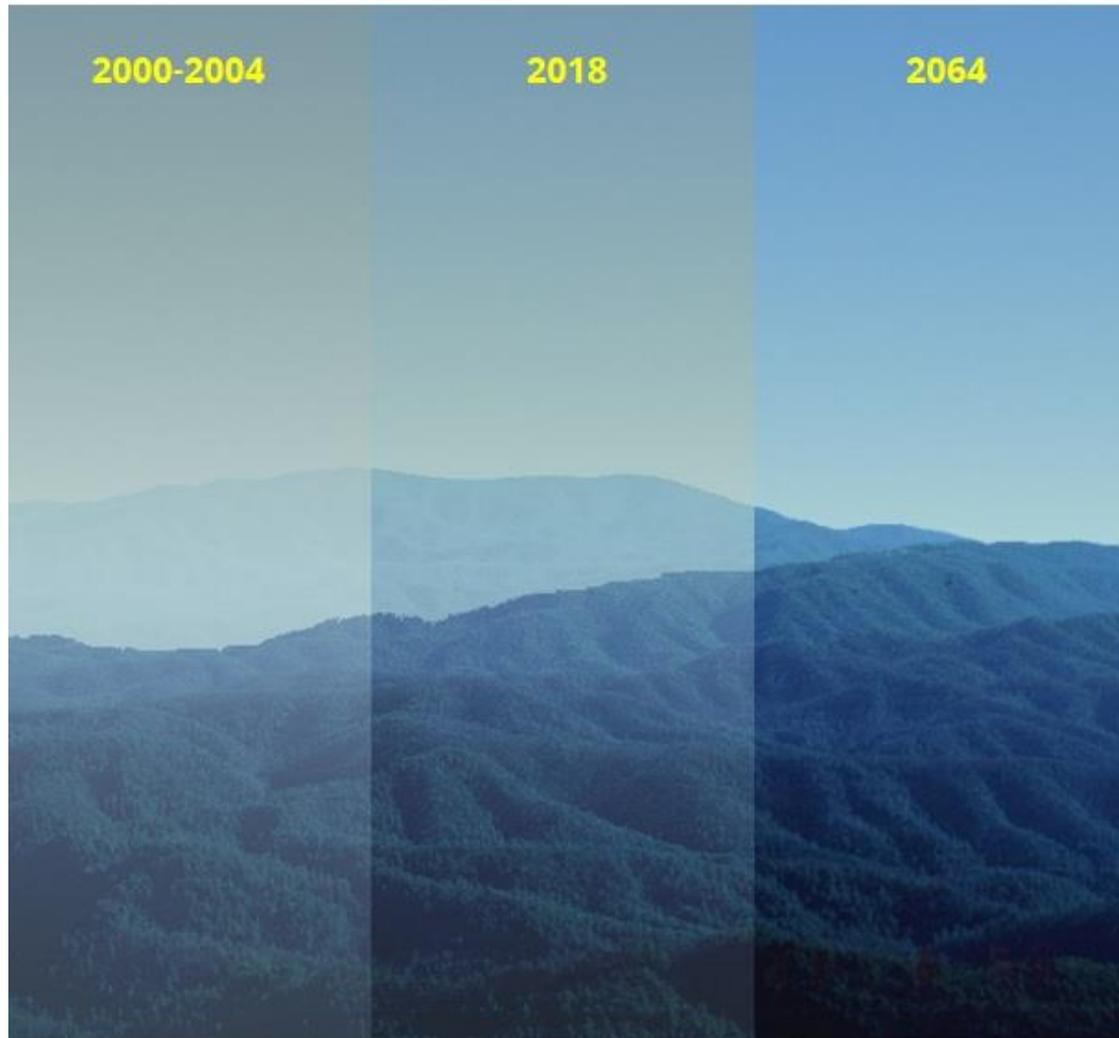
# Tougher federal standards, better air quality



# Progress in addressing regional haze



# Look Rock Observation in GSMNP



**Demonstrated top 20% of haziest days for 2004, 2014-218 and projected 2064 on current glidepath.** *Courtesy, National Park Service, TVA*

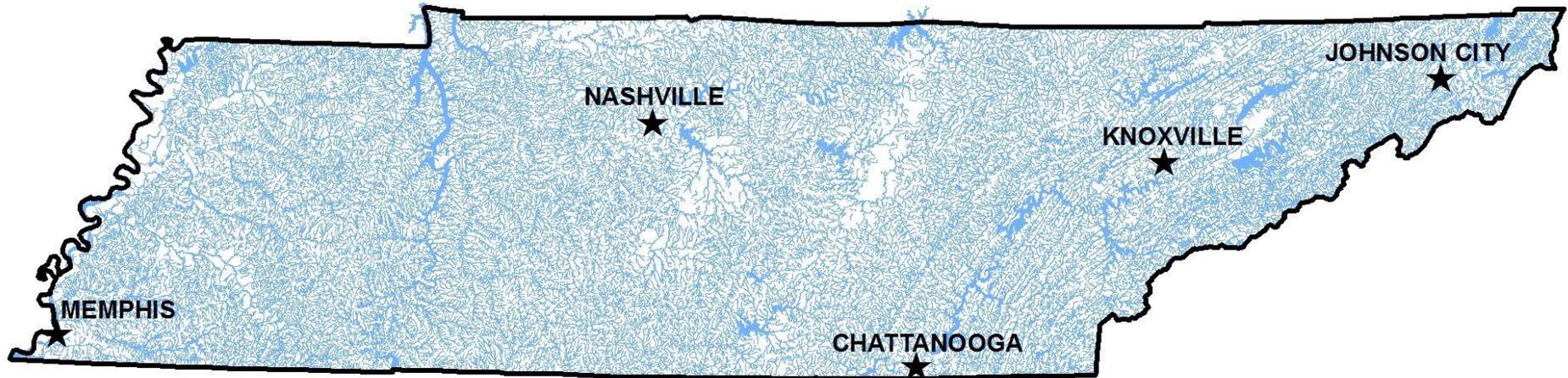


TM

**WATER**

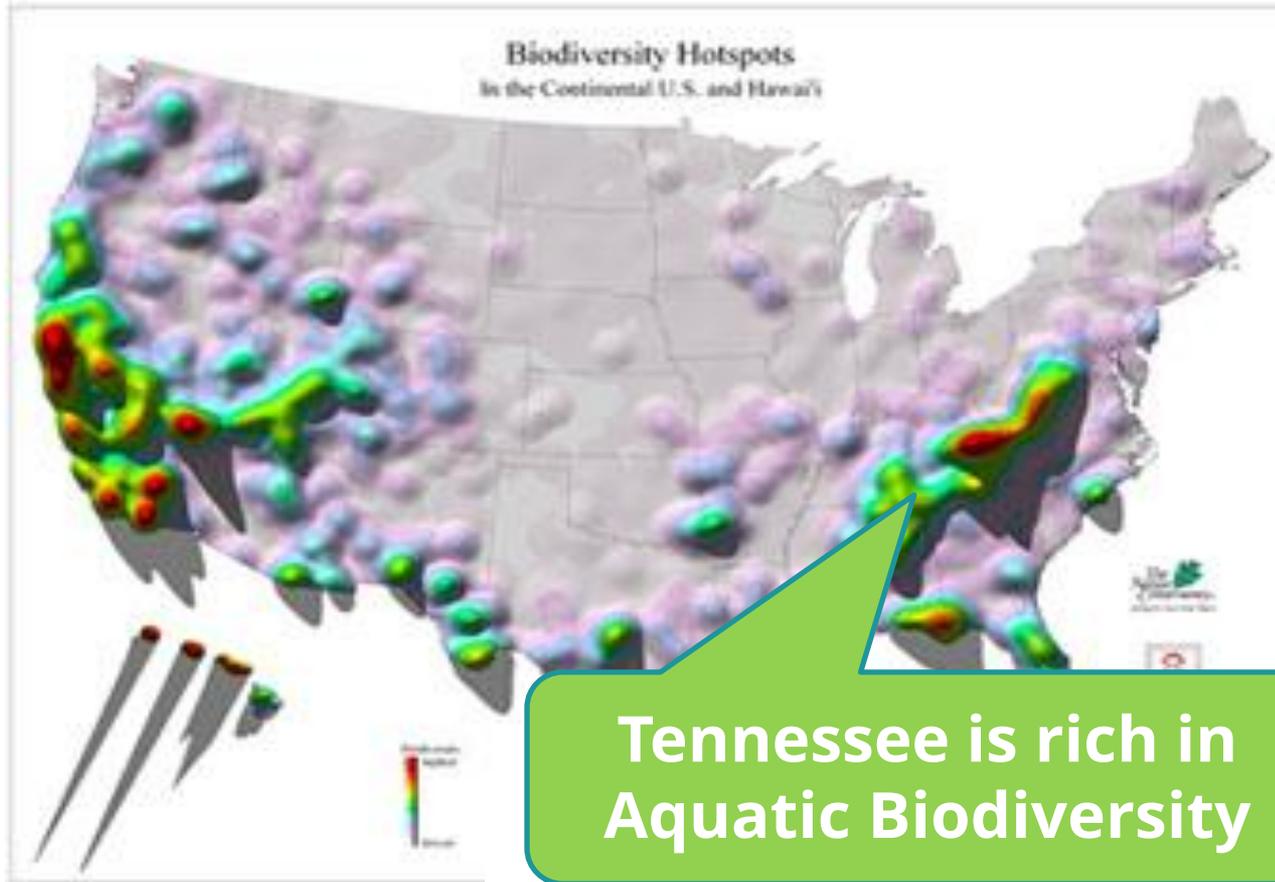
# Water: Tennessee's Advantage

- **More than 60,000 miles of rivers and streams**
- **More than 500,000 acres of lakes**
- **55 distinct watersheds**



- **Provides drinking water**
- **Offers recreational enjoyment**
- **Irrigates agriculture**
- **Meets industry needs**
- **Supports habitat for the most biodiverse freshwater aquatic system in the U.S.**

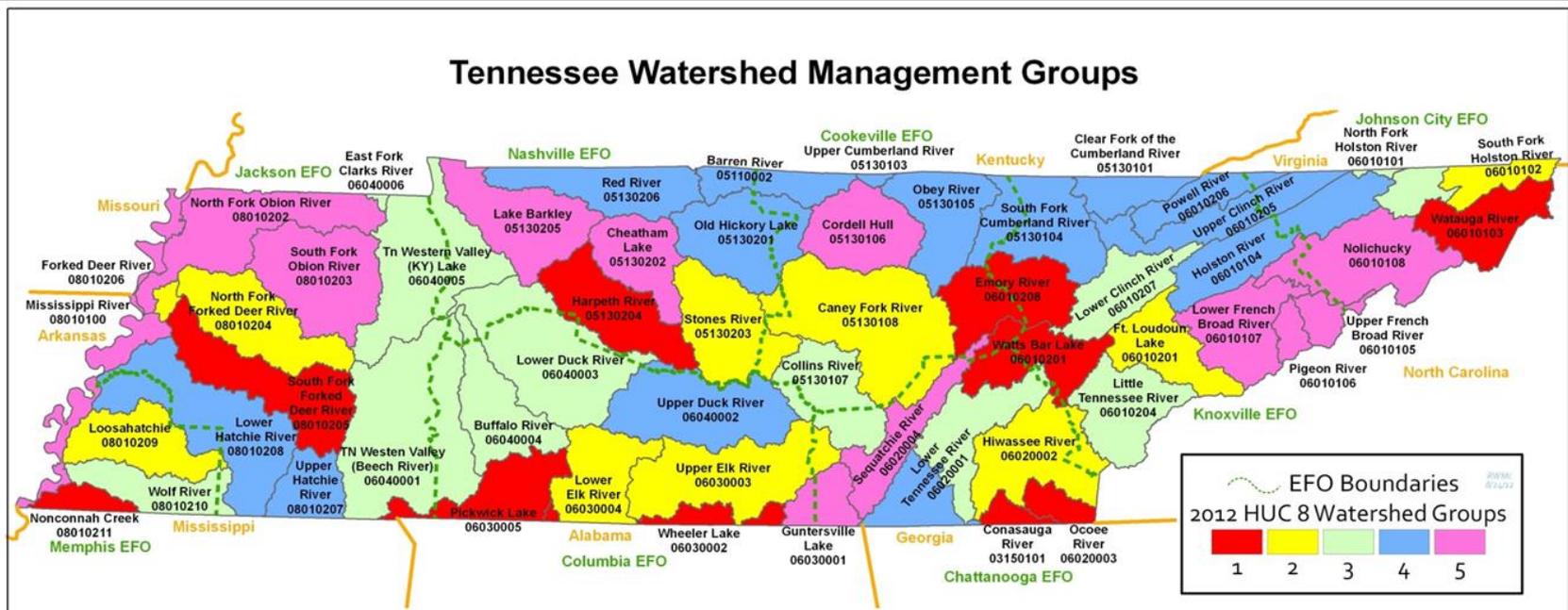
# Tennessee: Most Biodiverse Non-Coastal State



**Mussels from the Duck River near Columbia**  
The Duck River was featured in the February 2010 issue of National Geographic as one of the most biologically diverse places on the planet.

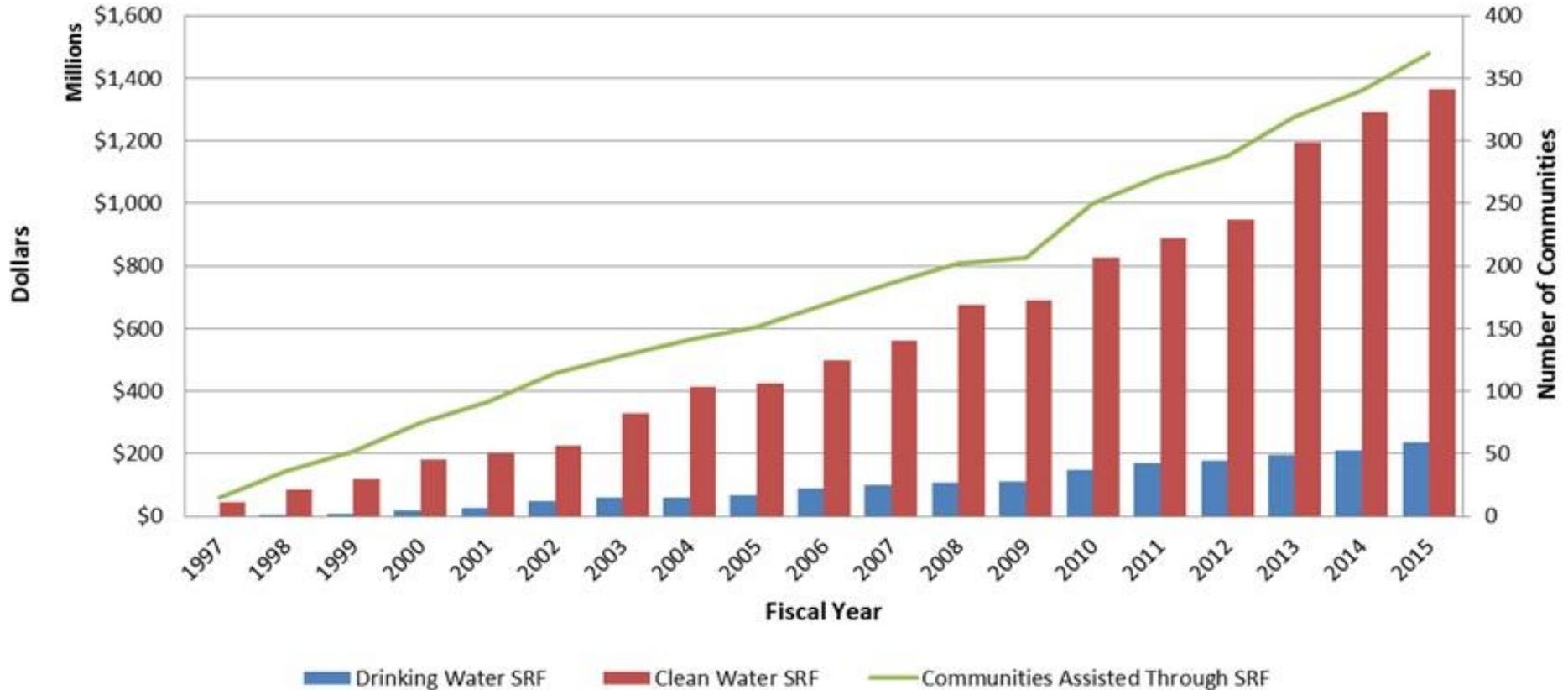
Source: The Nature Conservancy Biodiversity Index

# Systems Thinking Around 55 Watersheds



# Assisting 370 Communities with Critical Infrastructure

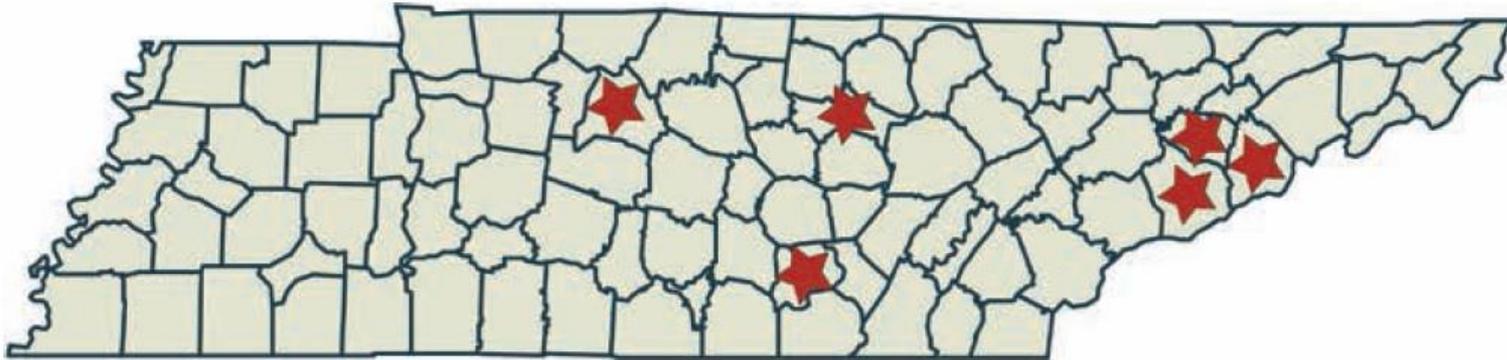
## State Revolving Fund loans for drinking water and wastewater infrastructure projects



\* \$228M for Drinking Water SRF \* \$1.36B for Clean Water SRF \* 370 Communities Aided

# Water quality: De-postings

## Locations of Water Quality Improvements Celebrated in 2015



**April 2013**

3.7 miles of the Little Fiery Gizzard and 1.9 miles of Clouse Hill Creek in Grundy County

**September 2013**

1.5 miles of Leadvale Creek in Jefferson County, 5 miles of Johns Creek, 4.4 miles of Baker Creek in Cocke County

**April 2014**

12.8 miles of Little Pigeon River and branches in Sevier County

**December 2014**

2.1 miles of Whites Creek in Davidson County

**May 2015**

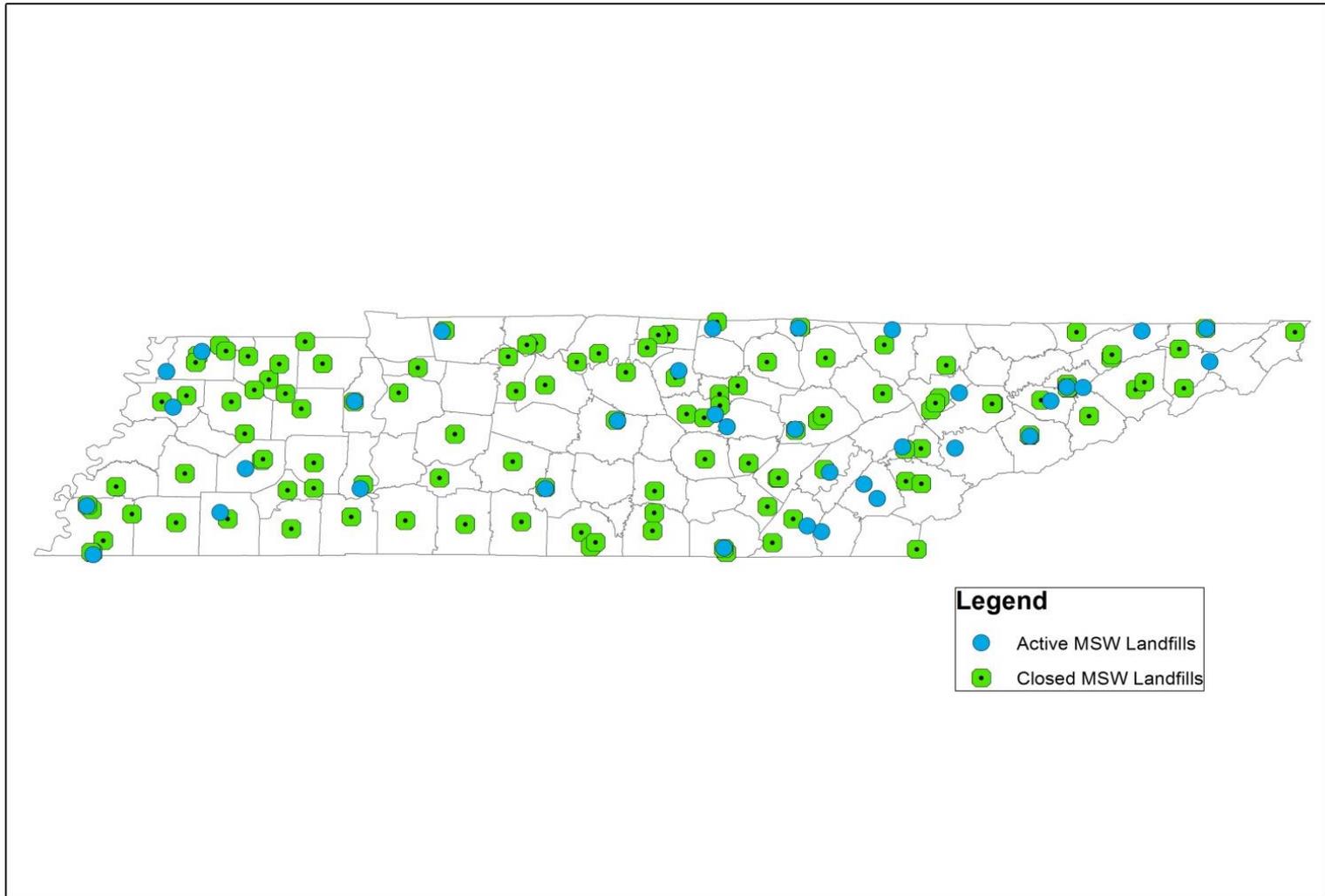
.5 mile segment of Mine Lick Creek in Putnam County



TM

WASTE

# Changing Face of Solid Waste Disposal

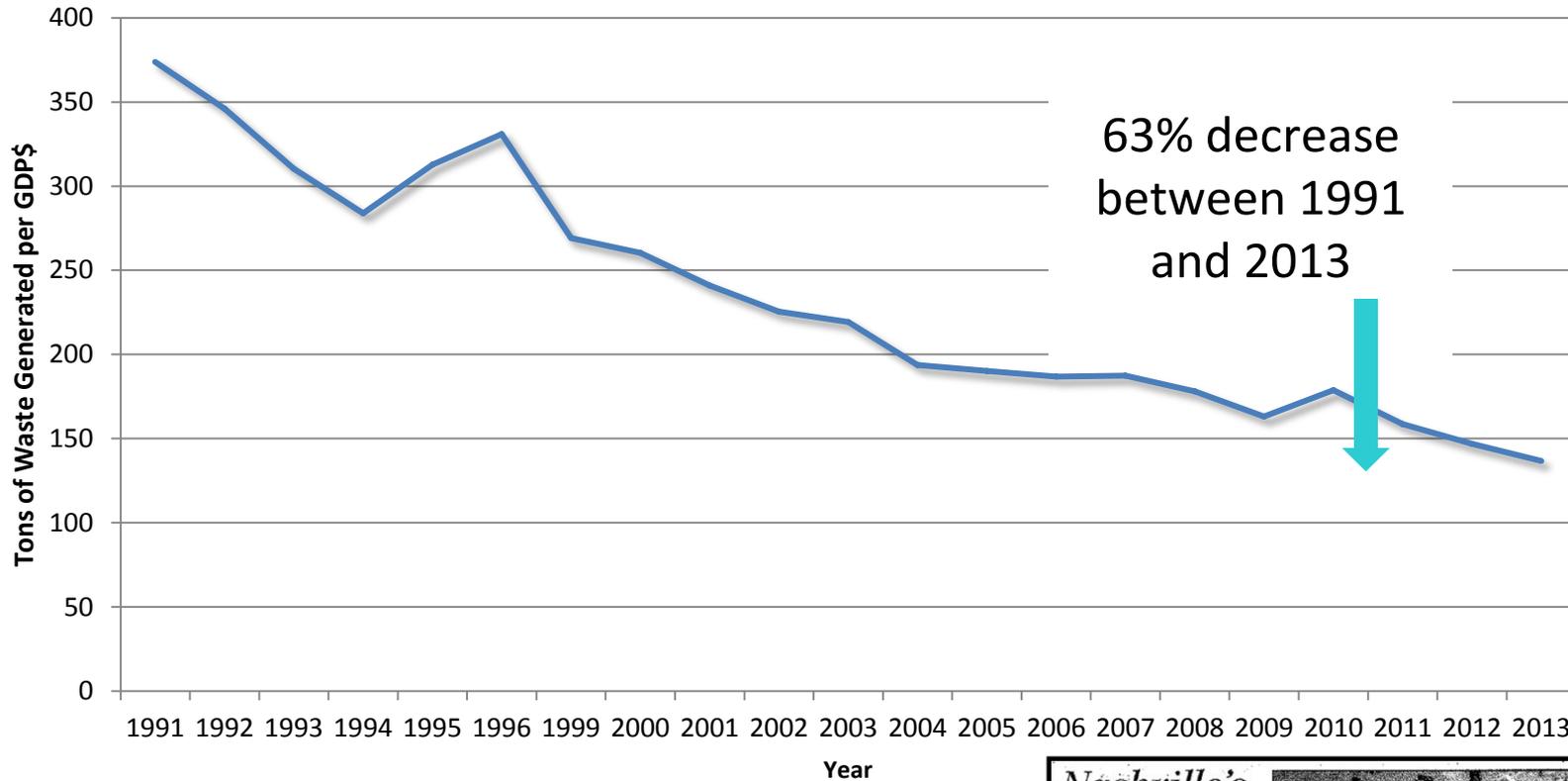


# Other Significant Waste Management Factors in the 90's

- Increasing Citizen Concern
- Increasing Stringency of Air Regulations
- Flow Control
- Technological and Policy Advancements in Landfilling
  - Liner/leachate collection systems
  - Ground water monitoring
  - Landfill gas system and gas monitoring
  - 30-year post closure and financial assurance requirements
- Operational Efficiencies
  - Area fill method (opposed to trenching)
  - Regional (larger) landfills capable of using large compaction equipment which maximizes amount of waste placed in given location

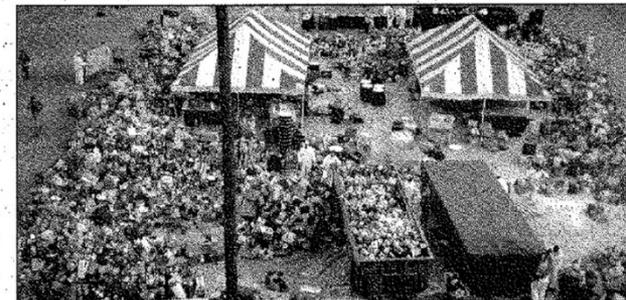
# Responsible Hazardous Waste Management

## Tons Hazardous Waste Generated per GDP (Tons/Million\$)



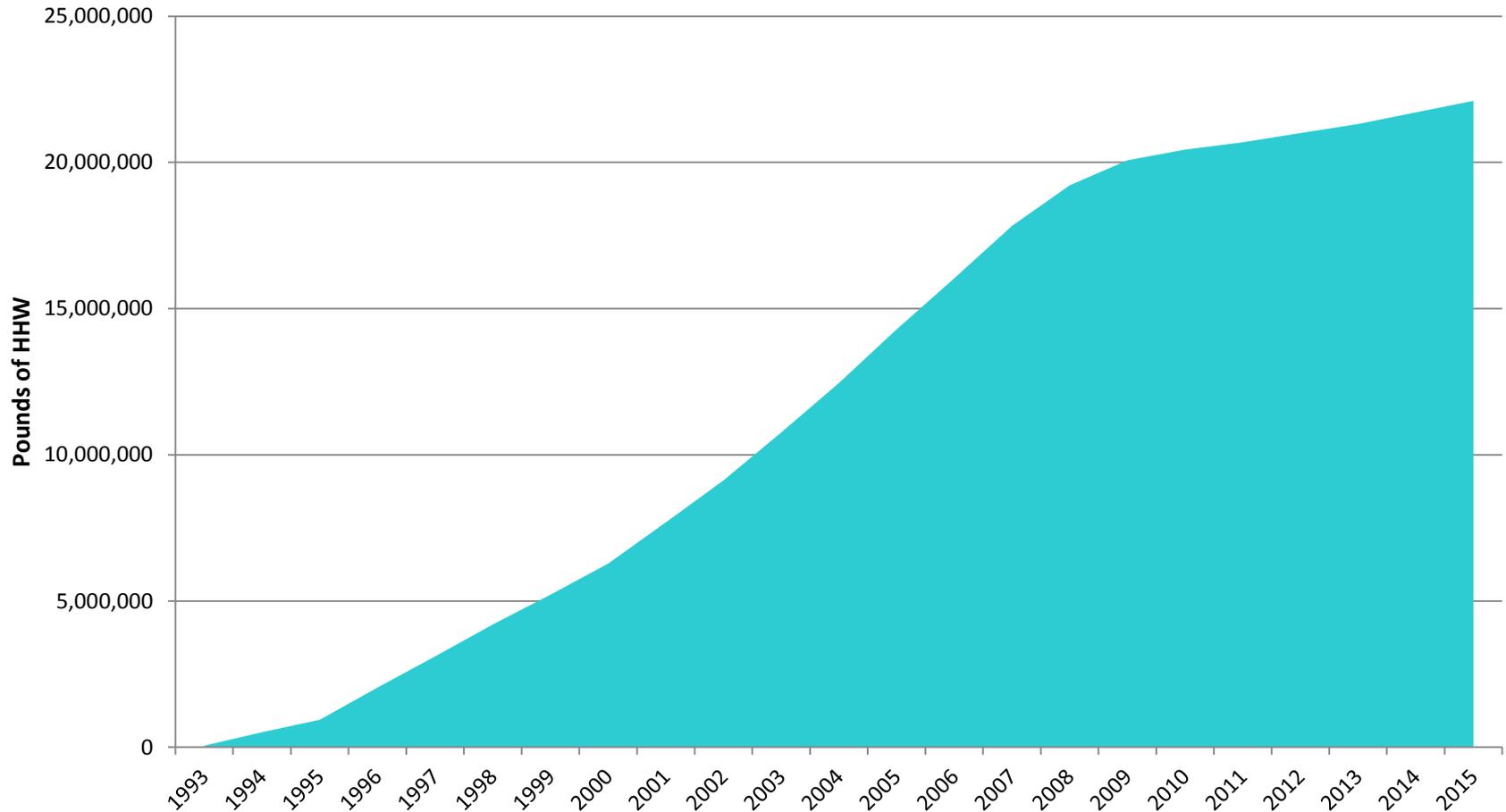
### Nashville's first HHW collection a success

Metro Nashville's inaugural Household Hazardous Waste collection, held Saturday, October 8, was a smashing success, according to the company picked to handle the materials. By the time the Woodland Street event site was



Over 2,600 households brought about 364,000 pounds of waste to the drop-off.

# Cumulative pounds of household hazardous waste collected



# Used Oil Collection

Working to improve used oil collection site accessibility and safety



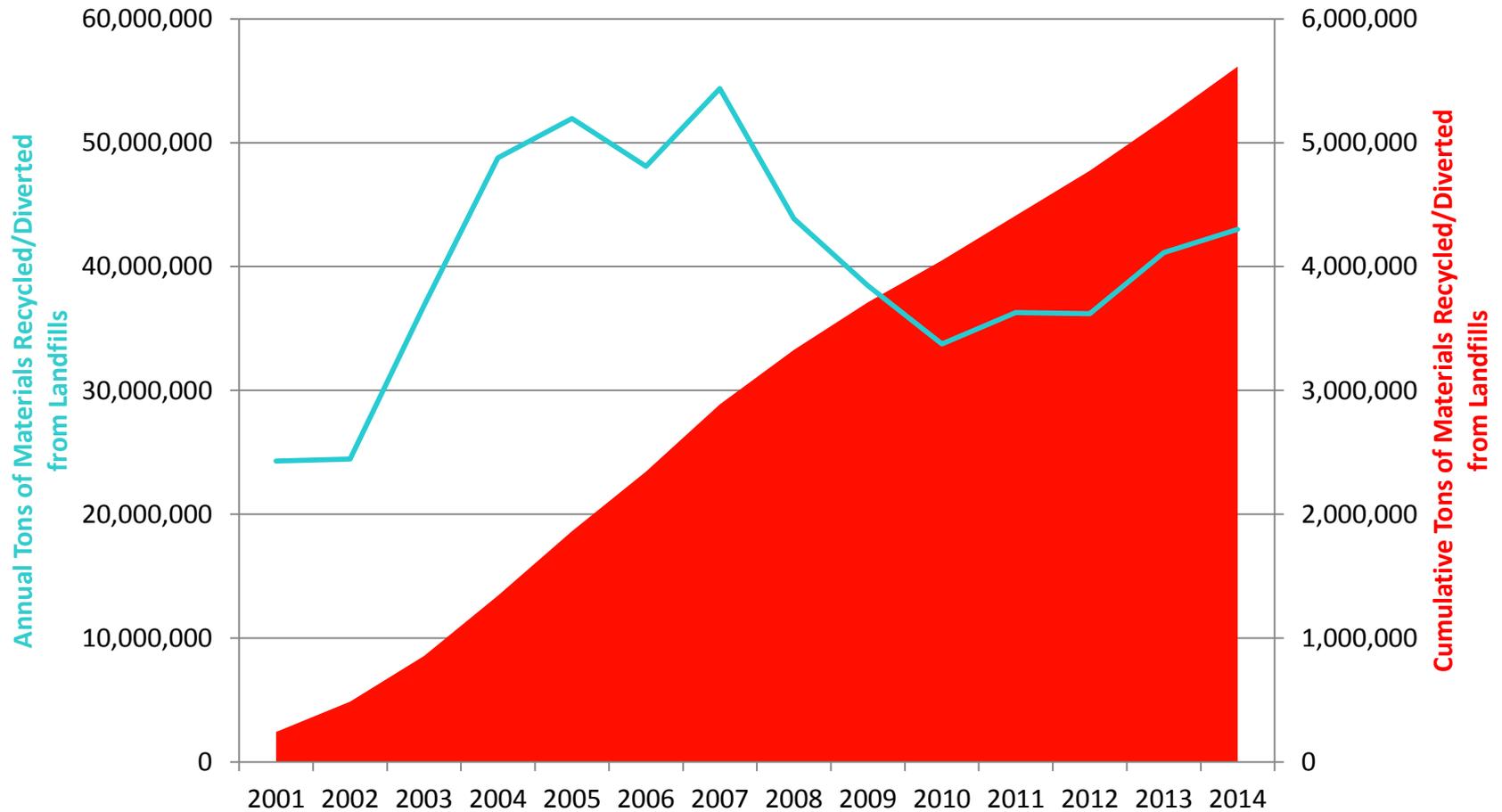
- **1993:** 126 used oil collection sites
- **2016:** 1,301 used oil collection sites

# Old Closed Landfill Grants

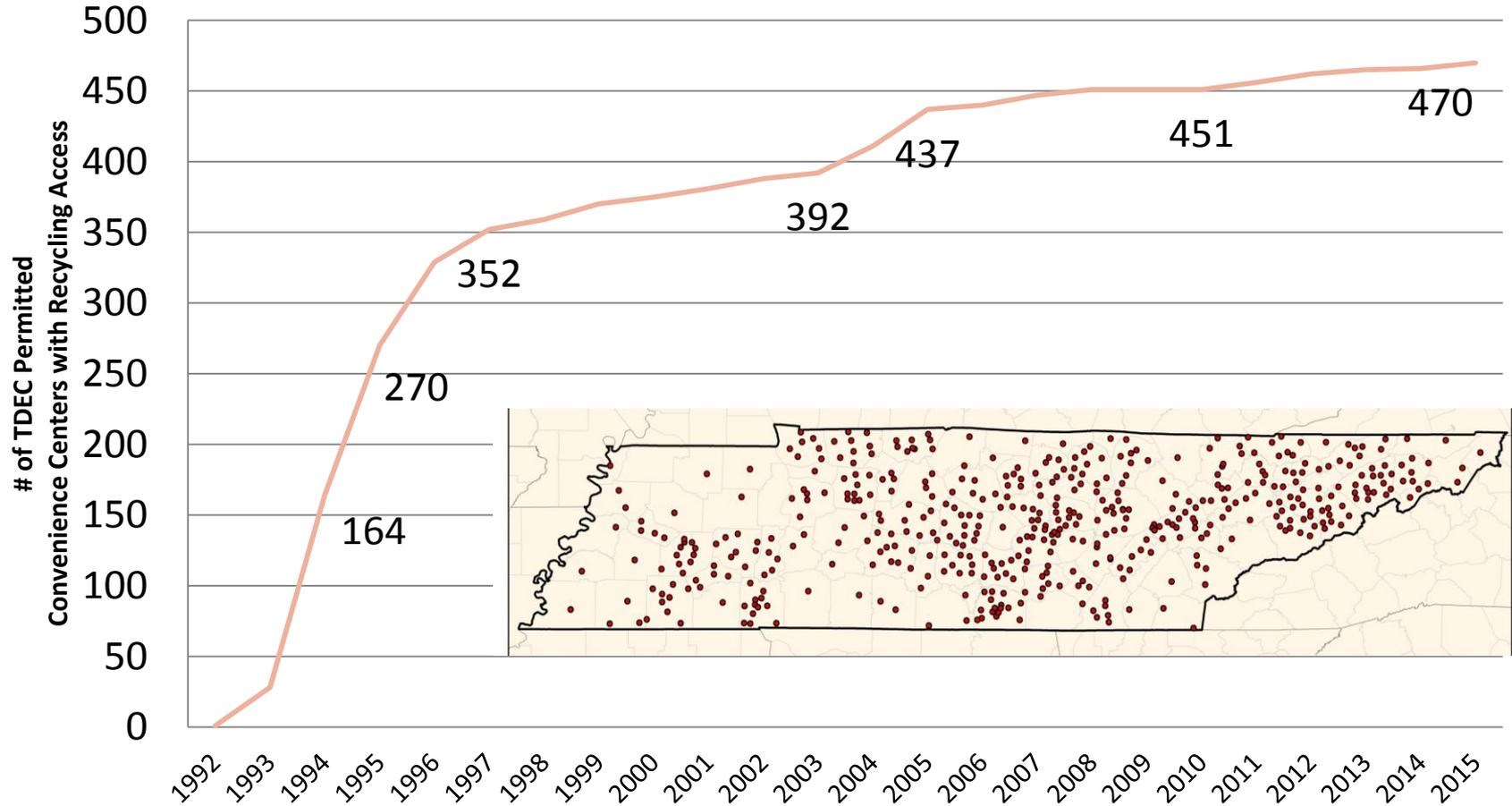


- Available for investigation and corrective action at Class I landfills
- Counties or municipalities eligible if:
  - They operated a Class I landfill permitted by the Department that is now closed;
  - The closed landfill does not have a composite liner system; and
  - TDEC determines that the landfill is causing harm to health or the environment through contamination of ground water

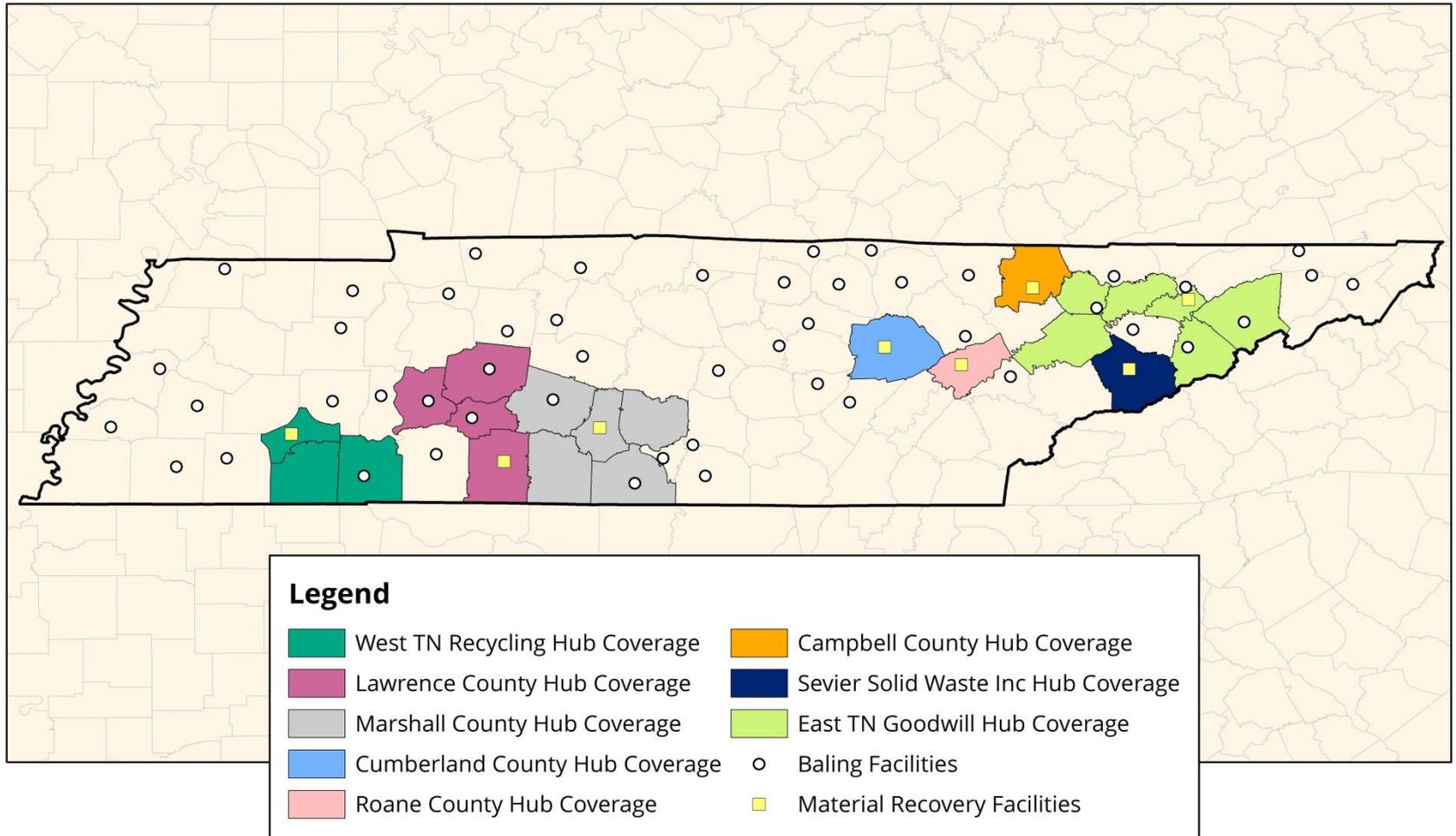
# Materials recycled/diverted from landfills



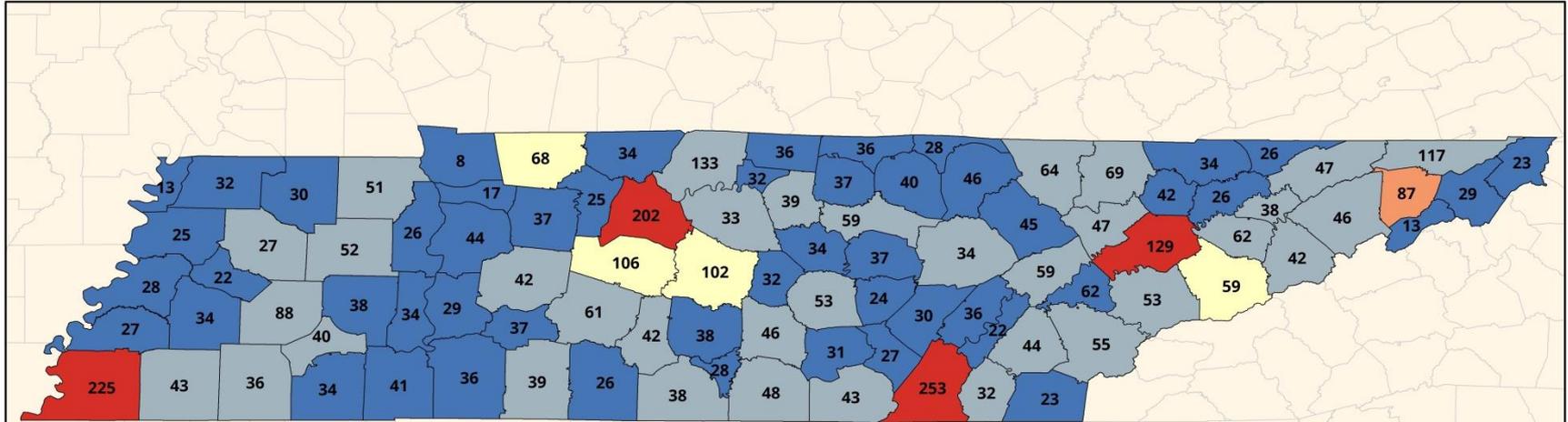
# Cumulative permitted Convenience Centers providing recycling access



# Materials processing access through publicly owned facilities



# 4,647 Solid Waste & Materials Management grants totaling more than \$154 million awarded since 1991



## Grant categories:

- Convenience Center
- Education
- Hub and Spoke
- Old Closed Landfills
- Tire Recycling and Cleanup
- Permanent Household Hazardous Waste
- Recycling Equipment
- Recycling Rebate
- Technical Assistance
- Used Oil
- Planning Grant

## Legend

### Total Money Received

- \$100,000 - \$1,000,000
- \$1,000,000 - \$3,000,000
- \$3,000,000 - \$5,000,000
- \$5,000,000 - \$10,000,000
- \$10,000,000 - \$18,000,000

# Toxic Substances Program

- Lead-Based Paint, since 2001
  - Monitored the compliance of 16,430 apartment/condo units and 1,728 single family homes that have been rendered “lead safe”
  - Conducted 382 environmental investigations of lead poisoned children referred by TDH
- Asbestos in Schools, since 2003
  - Conducted more than 750 inspections to monitor compliance with asbestos in schools regulations
- Accreditation & Certification
  - 632 individuals and 211 firms certified to conduct lead-based paint abatement activities
  - 1,823 individuals and 197 firms accredited to conduct asbestos activities



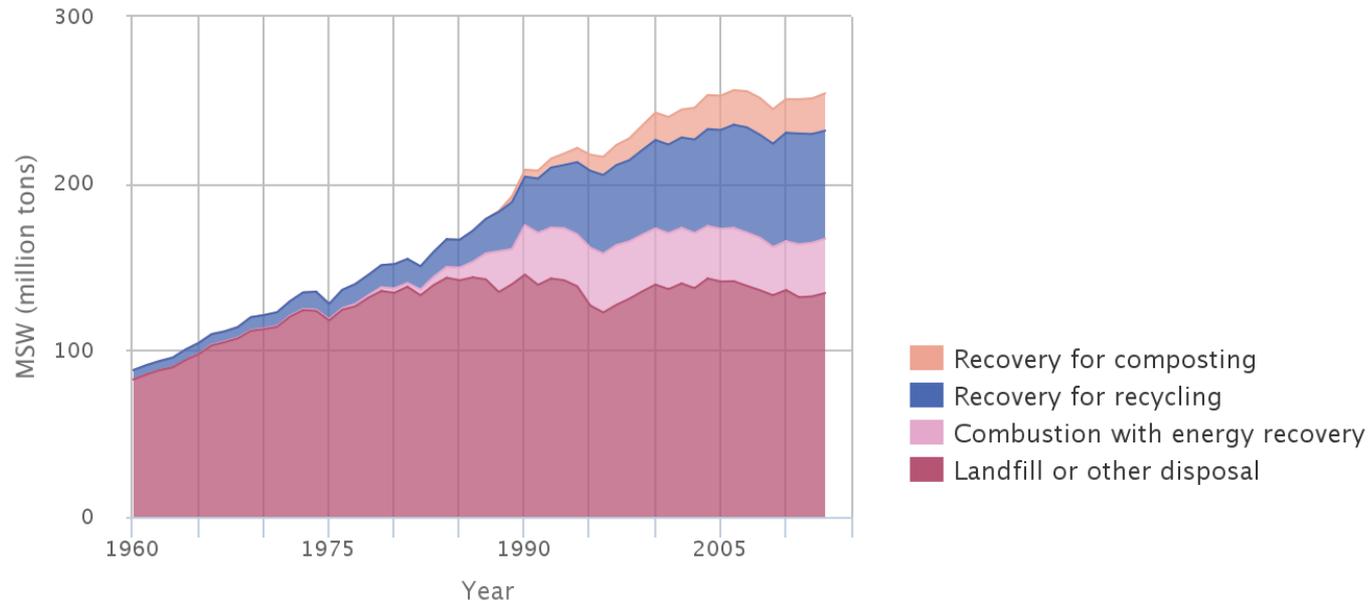


TM

# Ongoing Solid Waste Management Challenges & Opportunities

# Still Work to Be Done

**Exhibit 1. Municipal solid waste generated and managed in the U.S., 1960–2013**



No composting data are available prior to 1988. "Landfill or other disposal" includes combustion without energy recovery.

Information on the statistical significance of the trends in this exhibit is not presented here. For more information about uncertainty, variability, and statistical analysis, view the technical documentation for this indicator.

**Data source:** U.S. EPA, 2015

# Composting



New composting regulations to be finalized this summer add clarity to external community:

- Residuals categorized into feedstocks based on risk to human health and environment.
- Facilities categorized into tiers with requirements based on which feedstocks they handle.
- All facilities required to meet specified time and temperature requirements
- Distinction between contact water and stormwater and associated requirements.
- Training required for facility operations managers at regulated composting operations within the first year of supervising the facility.



# Reducing Food Waste

Exploring food waste reduction through:

- Source reduction
- Food donation to banks and shelters
- Scraps as animal feed
- Industrial uses, e.g., rendering industry, biofuel conversion, biogas conversion



# Tires



- Environmental Tire Fee passed in 2015 (Tire Environmental Act) to fund projects creating or supporting beneficial end use for waste tires
- Tire Derived Aggregate Approved for Subsurface Sewage Disposal 2015

# Coal Combustion Residuals

- TDEC Commissioner's Order issued in August 2015
  - Requires TVA to conduct environmental investigation and take corrective action when disposed Coal Combustion Residuals (CCRs) impact public health and the environment at all 8 TVA facilities in Tennessee;
  - Also establishes process through which TDEC will oversee TVA's implementation of federal CCR rule
- TDEC Order requires TVA to go above and beyond what is required by EPA CCR regulations by:
  - Directly enforcing state statute and rule
  - Requiring TVA to address CCR waste at closed surface impoundments, landfills and other unpermitted disposal areas
  - Providing public involvement in the corrective action(s) chosen for each TVA site
  - Allowing TDEC to assess civil penalties and damages for failure to complete proper environmental investigation and clean-up and to collect oversight costs at TVA CCR sites and to assess natural resource damages when appropriate

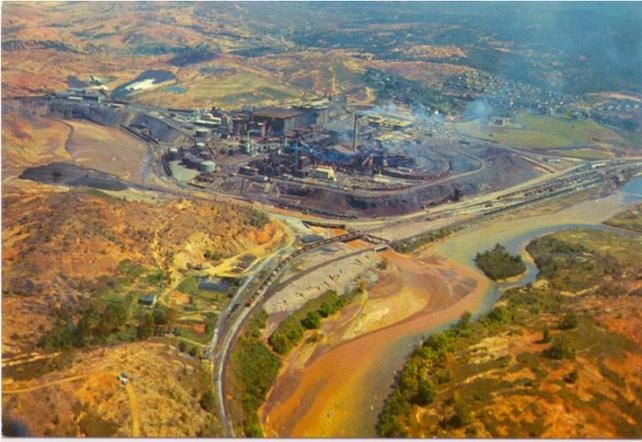


TM

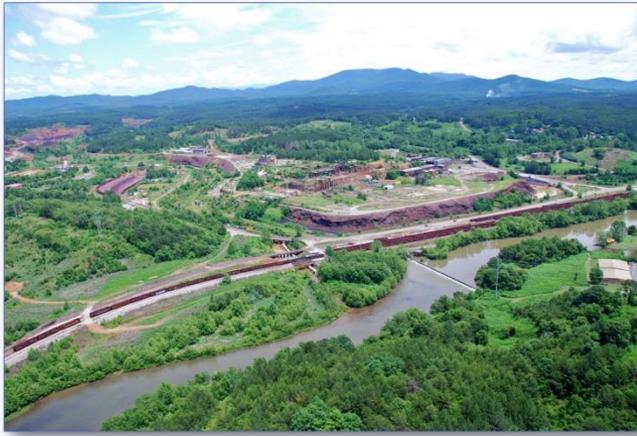


# Land Reclamation: Copper Basin region

*Before*



**Davis Mill/Intertrade area**



*After*

*Before*



**McPherson  
Mine area**

**Reclamation  
success enabled  
the Ocoee River to  
serve as sites for  
whitewater events  
during the 1996  
Olympics**



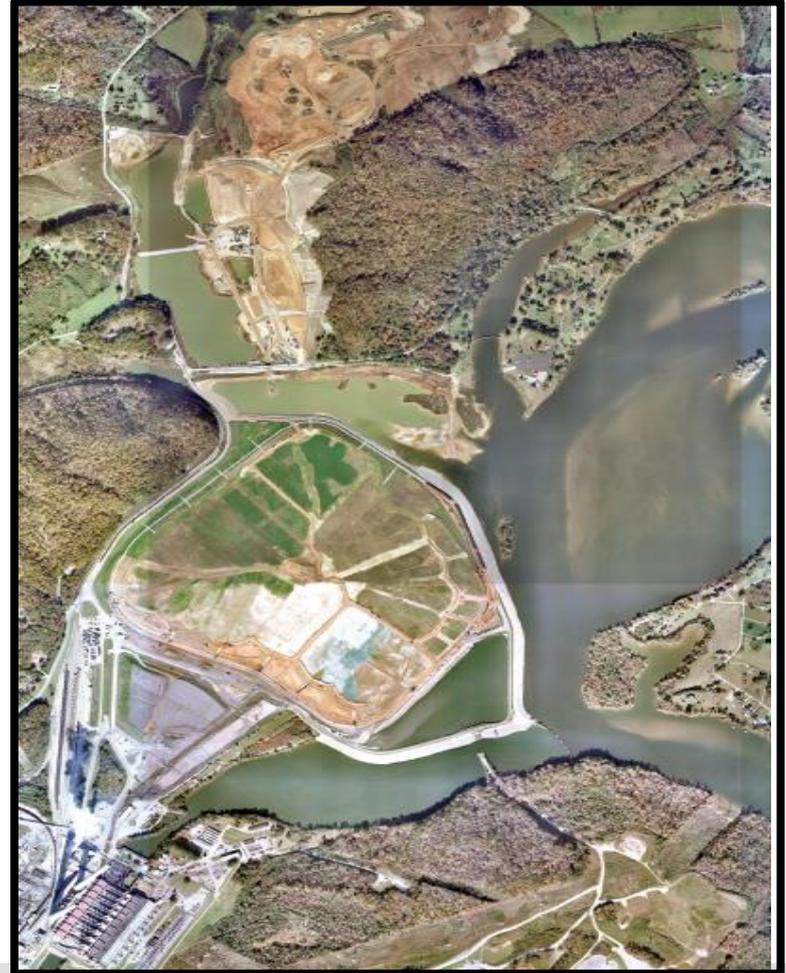
*After*

# TVA Kingston Fossil Plant Coal Ash Spill

*December 2008*



*November 2014*



# TVA Kingston Fossil Plant Coal Ash Spill

*December 2008*



*November 2014*

# Brownfield redevelopment

Year	# of Sites	Acres
2010	8	156.04
2011	19	30.93
2012	16	184.12
2013	25	285.65
2014	44	1764.98
2015	67	438.36
2016	7	48.03
	<b>186</b>	<b>2908.11</b>

	Sites	Acres
Shelby	17	99.97
Davidson	46	215.76
Knox	21	91.99
Hamilton	28	193.35

# Brownfield success story: Johnson City

- Founder's Park, property formerly used for mixed light industrial including a former gas station, tire retreading facility, bulk petroleum storage, and a drycleaner
- TDEC worked with the City to redevelop the property into a greenspace that also addresses a needed storm water retention project
- The park now provides the community with a five acre water greenway and space for outdoor concerts and recreation

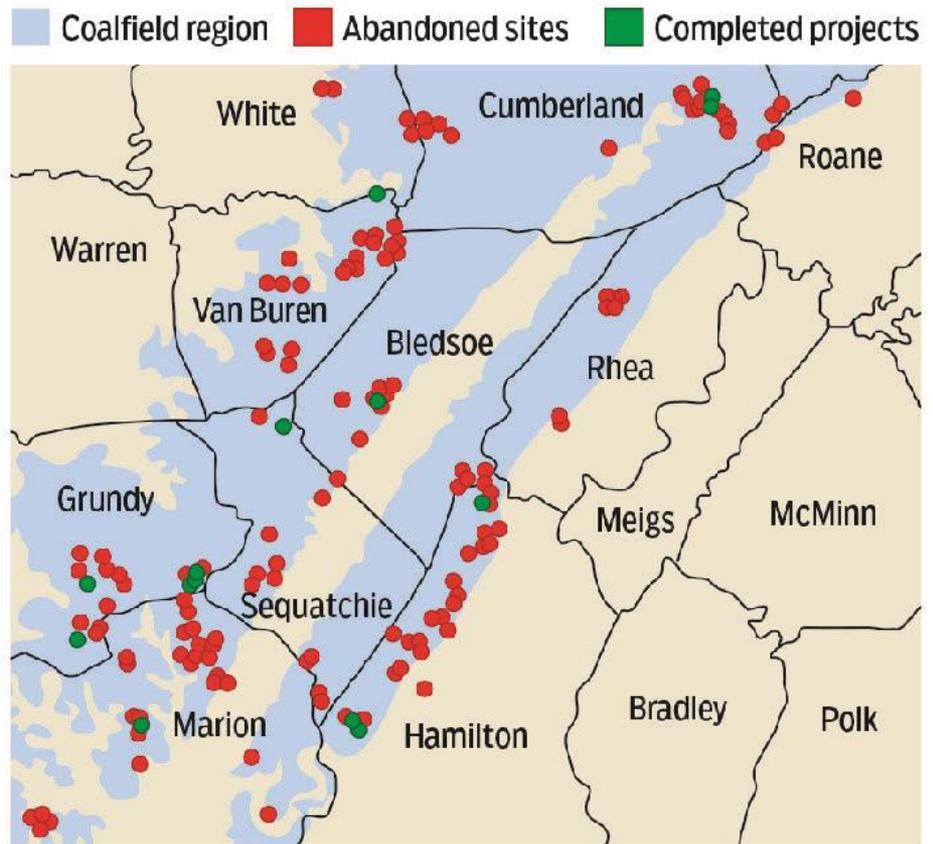


# Land Reclamation Program

Since 1991, the TDEC Land Reclamation Program has restored more than 200 abandoned mine sites, reclaiming a total of 3,043 acres.

Over 89 miles of waterline have been installed to provide a safe and reliable source of drinking water to 19 communities whose water supplies were adversely affected by coal mining activities.

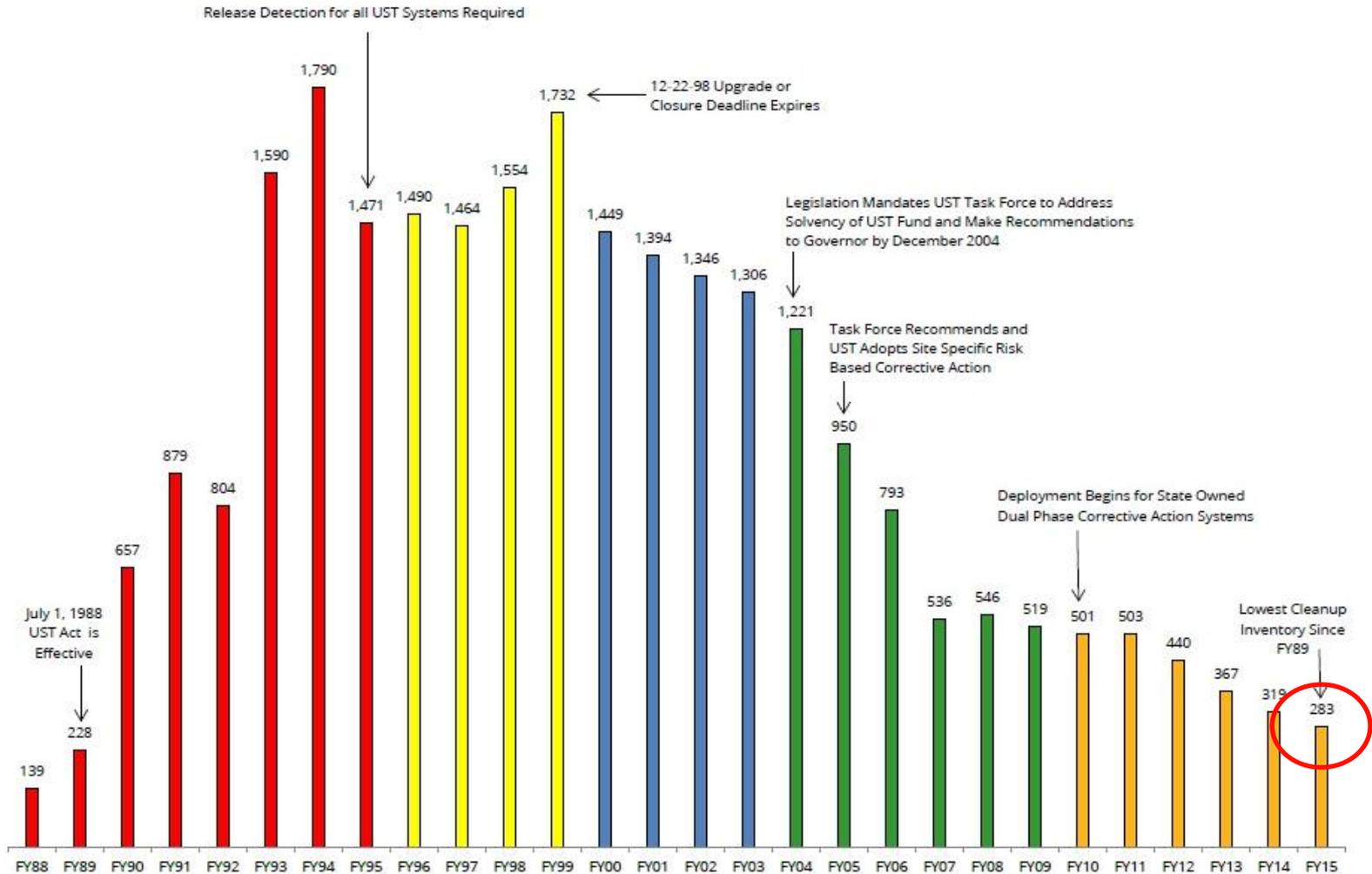
## Abandoned mine land sites



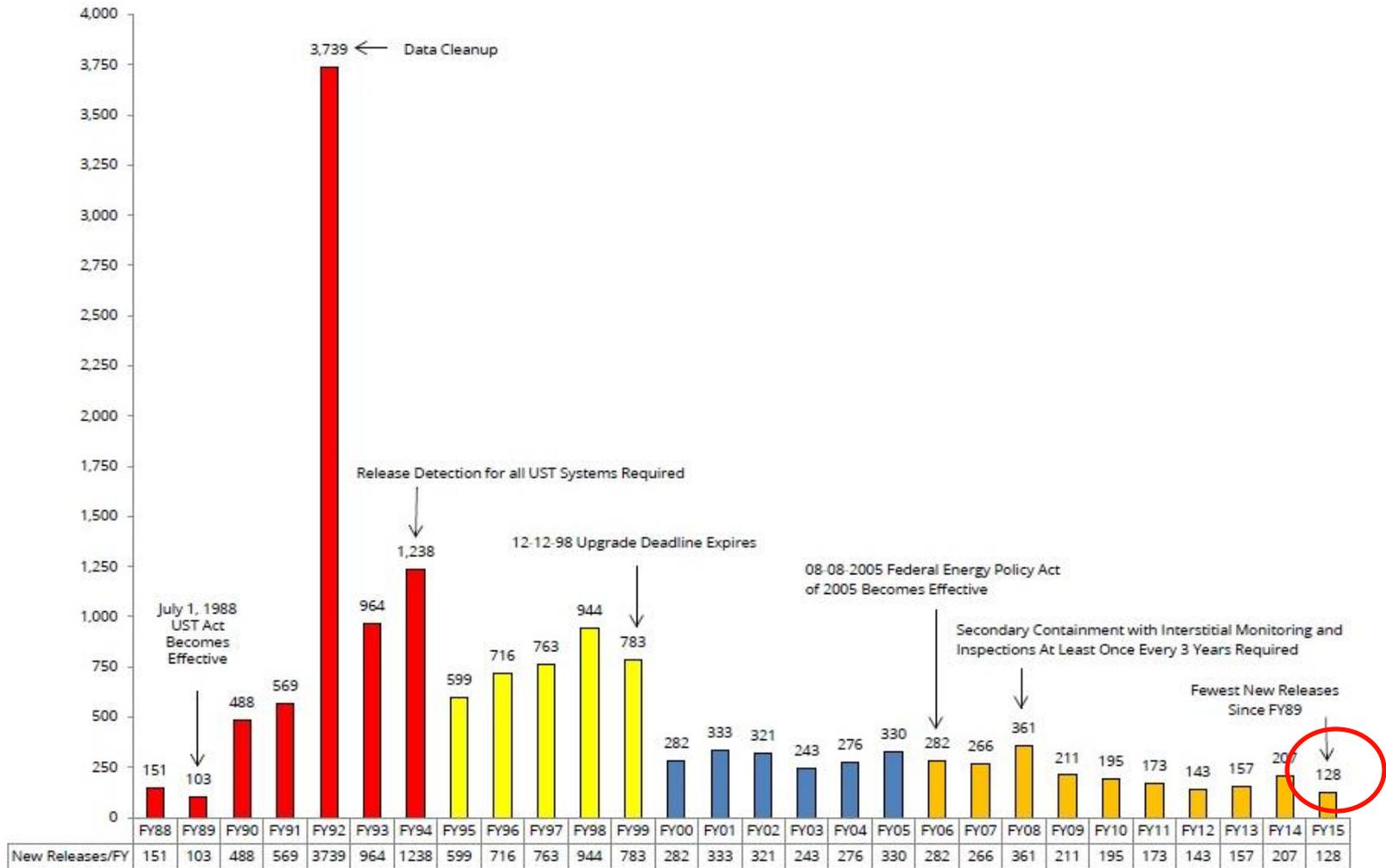
Source: Tennessee Department of Environment and Conservation

STAFF GRAPHIC BY MATT MCCLANE

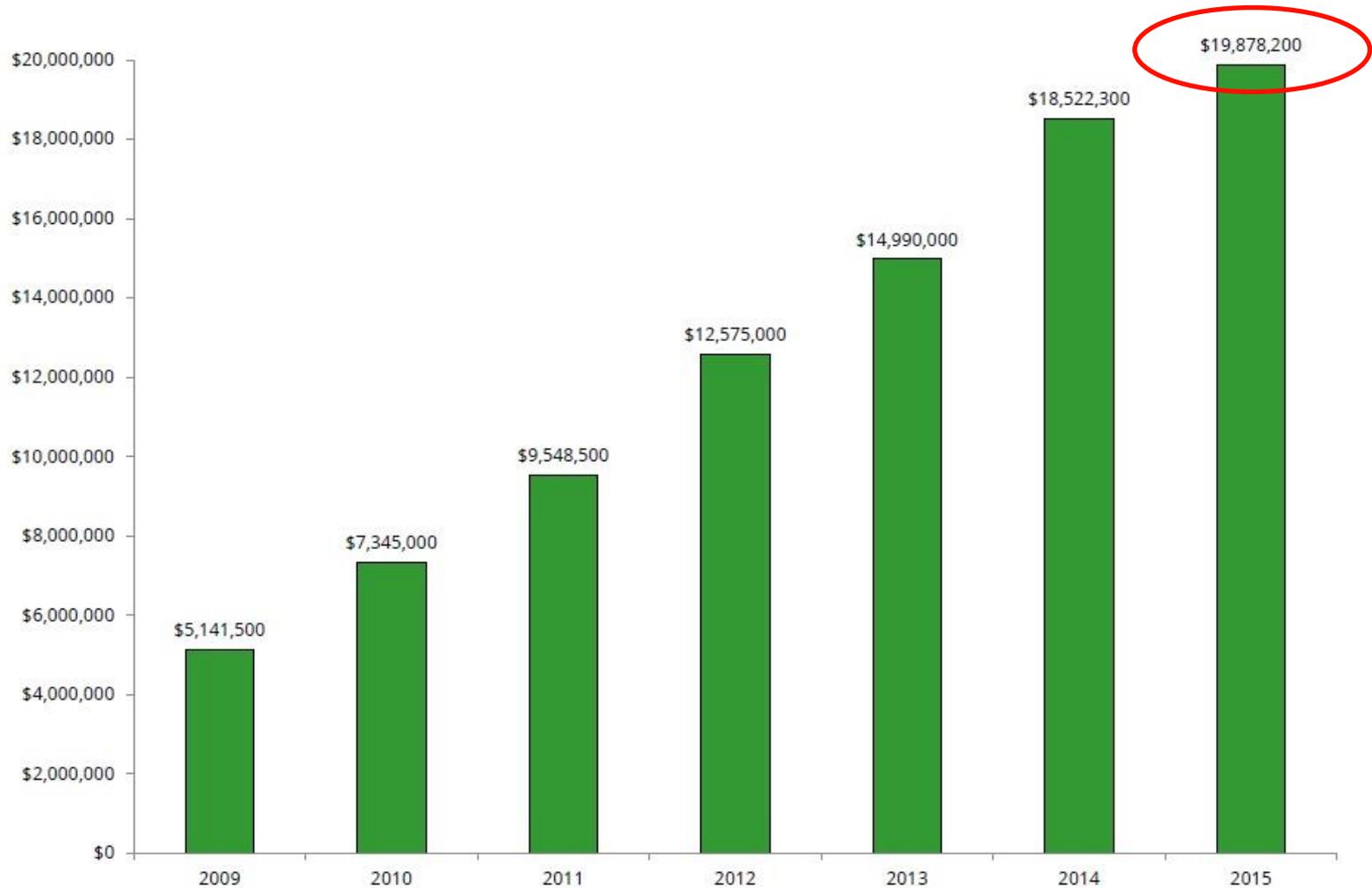
# Lowest UST cleanup inventory since 1989



# Fewest UST releases or spills since 1989



# UST innovations saving \$ for fund and taxpayers



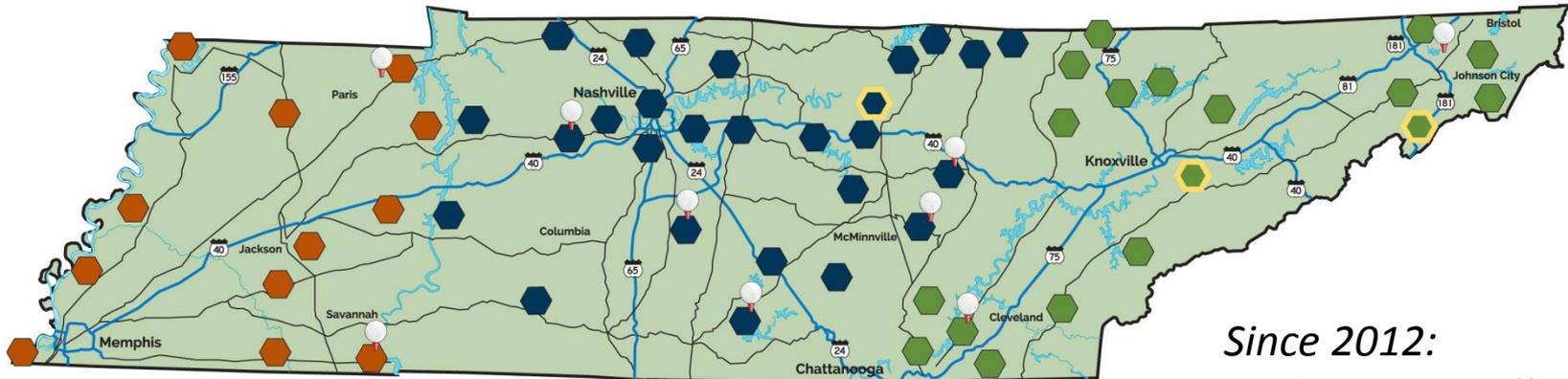


TM

# OUTDOOR RECREATION

# Supporting Outdoor Recreation and Rural Economic Development

*Fun and Adventure, Naturally!*



## 56 Tennessee State Parks

- ❑ >205,000 acres
- ❑ Millions of visits annually
- ❑ \$725 million in direct annual economic impact
- ❑ Supporting ~12,000 jobs across Tennessee

*Since 2012:*

- Cummins Falls
- Seven Islands
- Rocky Fork

...on the Web at [www.tnstateparks.com](http://www.tnstateparks.com)

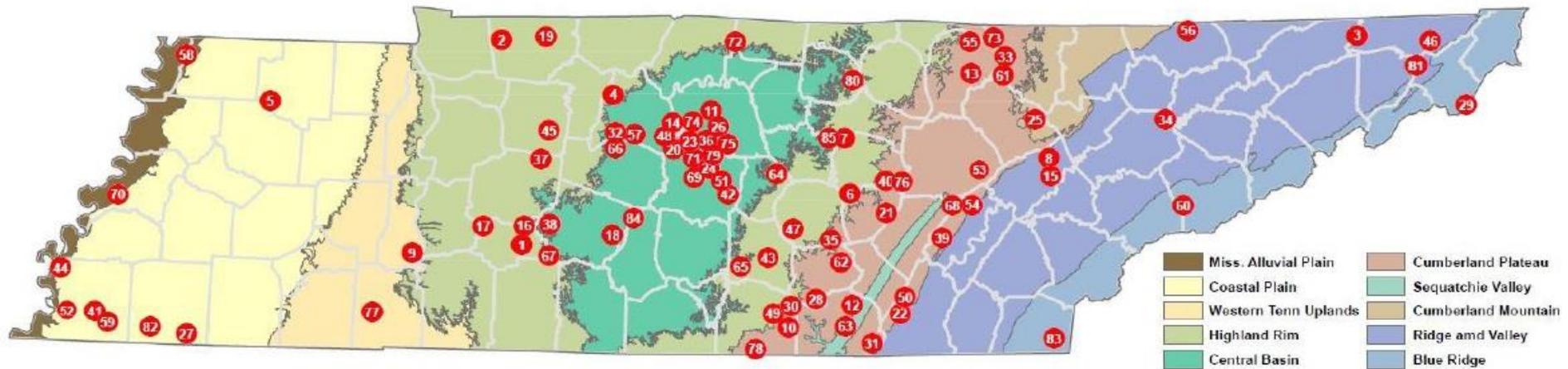


TM

**NATURAL RESOURCES**

# Public land added since 1991

- **State Parks: 61,604 acres**
- **State Natural Areas: 35,307 acres** (*85 SNAs shown below*)



## Particular acquisition strategies:

- **Protecting majestic woodlands, including important forests, mountains, streams and wildlife habitat**
- **Protecting unique forms of wildlife and offering opportunities for managed public access**
- **Acquiring park in-holdings or acreage to buffer existing parklands**

# Species health

**1991**

**431** species listed as Endangered, Threatened or under Special Concern

- *Rate of growth for endangered species in TN has slowed, and some species have even recovered.*
- *Many of the additions to the endangered list include discoveries of species previously unknown to occur in Tennessee.*

**2016**

**532** species listed as Endangered, Threatened or under Special Concern

***Species recovered and removed from Federal Endangered List since 1991***



**Eggert's Sunflower**

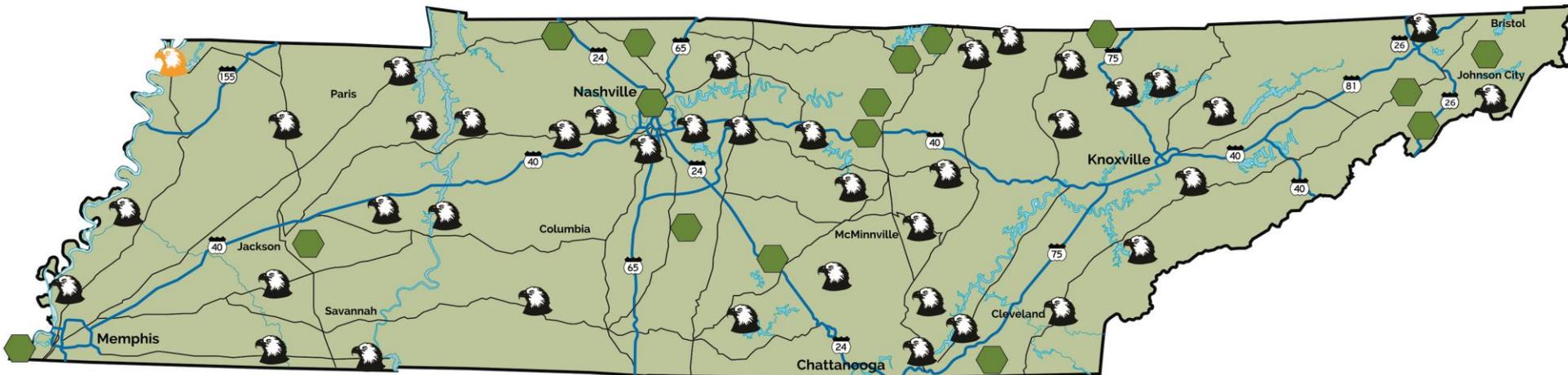


**Tennessee Coneflower**

# Bald eagle habitat in Tennessee

- 1961-1983: Tennessee had no known successful Bald Eagle nests
- 1983: First known nest was Reelfoot Lake State Park
- Today: Bald Eagles have been sighted or nesting at 40 Tennessee State Parks – from Reelfoot Lake to Roan Mountain
- March 4, 2016: Two eagles hatched at Harrison Bay and were viewed around the world on [www.harrisonbayeaglecam.org](http://www.harrisonbayeaglecam.org)

## Bald Eagle Sightings or Nestings in Tennessee State Parks



# Gray Fossil Site and Museum in NE TN



# Lucky to have support from the very top



*Gov. Haslam has been a champion for TDEC and our employees, from environmental protection to state parks and conservation to our premier awards programs recognizing outstanding environmental stewardship.*

# Present & Future: Committed to our Mission

- **Improve Quality of Tennessee's Environment**
  - Air
  - Water
  - Waste
  - Protect Land & Natural Resources
- **Promote "Environmentally Friendly" Practices**
  - Energy: Efficiency, Conservation, and Renewables
  - Sustainable Practices: Local & State; Public & Private

# Questions, Comments, Suggestions?

Contact:

**Bob Martineau, Commissioner**

**Tennessee Department of Environment & Conservation**

***Bob.Martineau@tn.gov***

***(615) 532-0106***