TN TDOT Department of Transportation

Safety Performance Measures Working Group

2017 MPO Conference

Overview

Patsy Mimms
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Tennessee Department of Transportation

Overview

- Background and Approach
- Federal Legislative Requirements
- Data and Statistical Analysis
- Target Setting Context–Qualitative Factors to Consider
- MPO Coordination
- Questions

Background and Approach

- Office of Strategic Planning Role
  - TDOT Performance Measurement Framework
    - Strategic Goals, Performance Reporting, Measure Documentation
  - FHWA/TDOT Stewardship and Oversight Agreement Indicators

- TDOT Approach to Final Rule Implementation
  - Safety PM Working Group
  - Oversight Committee
  - Draft Process and Tools
  - Safety PM Rule as learning model
    - Identify “lessons learned”

Safety PM Working Group

- <u>Safety PM Working Group Representatives</u>
  - TDOT Long-Range Planning
  - TDOT Strategic Transportation Investments
  - TDOT Strategic Planning
  - TDOT Multimodal
  - TN Dept. of Safety and Homeland Security
  - TN Highway Safety Office
    - Research and Planning
  - FHWA - TN Division Office Representatives

TDOT Final Rules Oversight Committee

To provide oversight and coordination for implementation of MAP-21/FAST Act final rules from an organizational-wide perspective so that:

- *key timeframes and other requirements are met*
- *processes and resources are aligned to support national measures*
- *targets are set in consideration of resources, other plans, and in collaboration with others*
- *transfer of learning occurs*

Draft Target Setting Process

1. Define Purpose and Target Audience
2. Determine Data Governance
3. Set Target Setting Parameters
4. Identify and Assess Influencing Factors
5. Analyze Baseline and Trends
6. Establish a Target
7. Determine Strategies to Achieve Target
8. Track Progress on the Target

Tools and Templates

- Process Timeline
  - THSO Target Reporting – July 1, 2017
  - TDOT Target Reporting – August 31, 2017
- Responsible, Accountable, Consulted & Informed (RACI) Matrix
- Strengths, Weaknesses, Opportunities & Threats (SWOT) Assessment
- Performance Measure Reference Guide
- Performance Target Documentation Guide

Lessons Learned

SUSTAIN

+ Key structures used to help with target setting
  * Safety PM Working Group
  * Final Rules Oversight Committee

+ Both quantitative data and qualitative factors are key target considerations

+ Documentation is critical: data used and rationale for target selection

OPPORTUNITIES FOR IMPROVEMENT

- Better communication and collaboration during process
  * MPO participation in SWOT
  * Add checkpoints in process to update MPOs and leadership
  * Update and use RACI matrix to greater advantage

- Refer to final rule often to ensure compliance

- Accuracy of data verified and data analysis timing in process

Questions/Comments

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TN TDOT Department of Transportation

Federal Legislative Requirements

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Federal Highway Administration
United States Department of Transportation

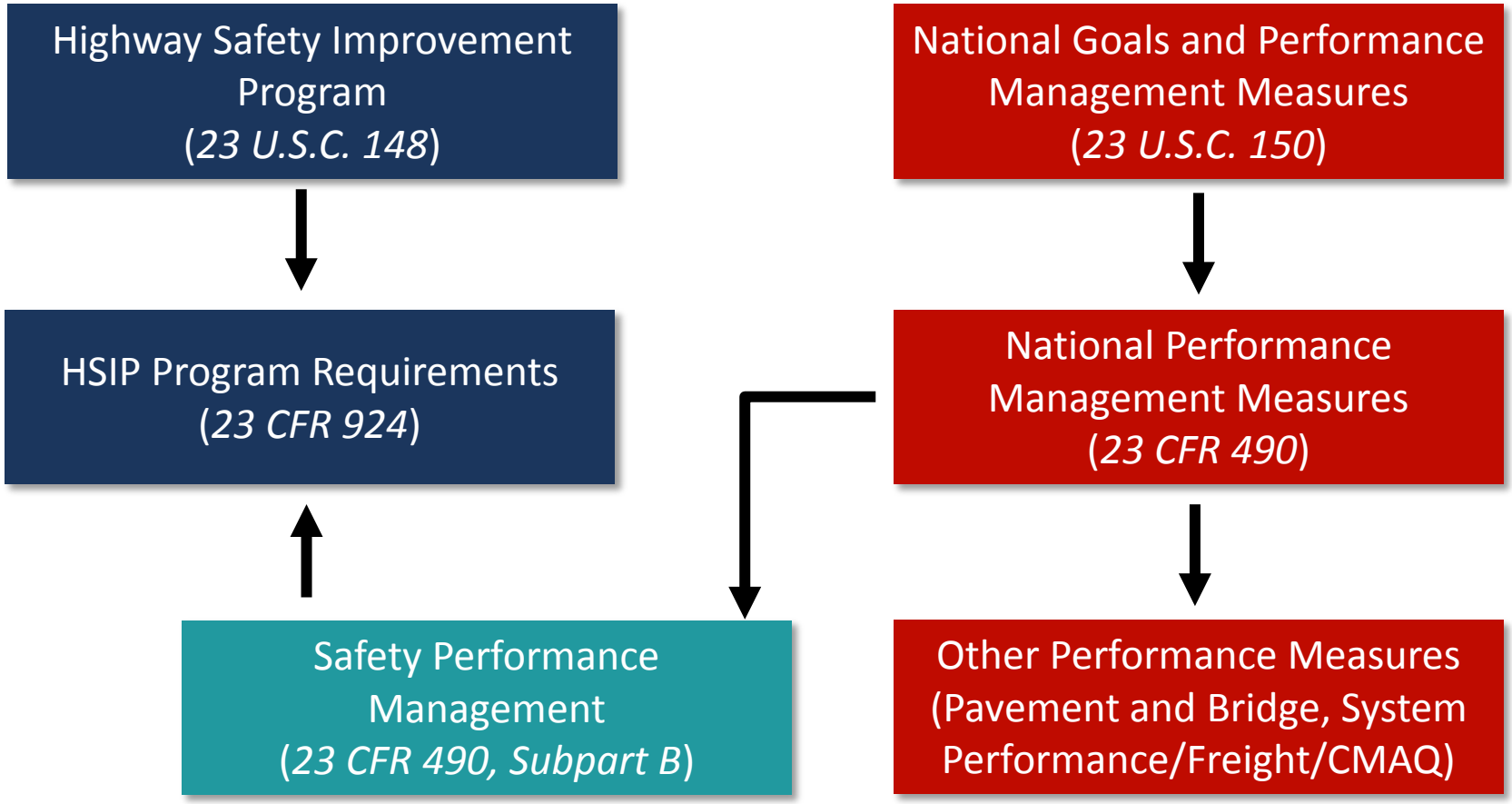
Agenda

- Legislative background and relationships
- 23 CFR 924 and 490
- Definitions
- Data Sources
- Establishing targets
- Role of MPOs
- Gauging, evaluating and reporting performance
- Timeline of events
- References

Legislative Context

- 2 Final Rules
  - 23 CFR 924 - Highway Safety Improvement Program (HSIP) – Revises existing regulations
  - 23 CFR 490 Subpart B - Safety Performance Measures – Establishes a new regulation that defines Safety Performance Measures.

Relationships



23 CFR 924 – HSIP Prog Requirements

- Revises existing regulation
- Items removed
  - Transparency report
  - High Risk Rural Roads set-aside and reporting
  - 10% flexibility provision for States to use safety funding
- Items added
  - State Strategic Highway Safety Plan (SHSP) update requirements
  - Model Inventory of Roadway Elements (MIRE) Fundamental Roadway Elements (FDE)
  - HSIP reporting content and schedule

23 CFR 490 Subpart B – Safety PM

- Establish Safety Performance Measures
- State DOTs will assess
  - Number of Fatalities
  - Number of Serious Injuries
  - Fatality Rate (per Million VMT)
  - Serious Injury Rate (per Million VMT)
  - Number of Non-motorized Fatalities and Serious Injuries
- Propose targets (5 year moving average) on a yearly basis
- Determine if State has met or made significant progress
- Identifies consequences

Operational Definitions

- Measure: An expression based on a metric that is used to establish targets and to assess progress towards meeting the established target
- Target: A quantifiable level of performance or condition, expressed as a value for the measure, to be achieved within a time period required by the FHWA
- 5 Year Rolling Average (5YRA): *Arithmetic* average of 5 individual, consecutive points of data
- Number targets: calculate arithmetic average and round to the *tenths* place.
- Rate targets: calculate rate and round to the *thousandths* place.

Number and Rate Target Example

Number Targets

Year	2011	2012	2013	2014	2015	Result
Number of Fatalities	471	468	493	468	462	471+468+493+468+462 = 2,362 / 5 = **472.4**

Rate Targets

Year	2011	2012	2013	2014	2015	Result
Number of Fatalities	471	468	493	468	462	
Per 100M VMT	454.21	487.50	466.48	492.27	495.97	
Rate of Fatalities	1.04	0.96	1.06	0.95	0.93	1.04+0.96+1.06+0.95+0.93 = 4.94 / 5 = **0.988**

Data Sources

- Fatality Analysis Reporting System (FARS): census providing the public with yearly data regarding fatal injuries suffered in motor vehicle traffic accidents
  - Final FARS data
  - Annual Report File (ARF)
- Highway Performance Management System (HPMS): database that includes information on extent, condition, performance and use of Nation's highways used for VMT derivation
- State / MPO motor vehicle crash databases: "locally" owned information systems

Data Source Summary Table

Performance Measures	Data Sources Used
Number of Fatalities	Final FARS (ARF may be used if Final FARS is not available)
Fatality Rate	Final FARS (ARF may be used if Final FARS in not available) and HPMS
Number of Serious Injuries	State / MPO motor vehicle crash database
Serious Injury Rate	State / MPO motor vehicle crash database and HPMS
Number of Non-motorized Fatalities and Serious Injuries	Final FARS (ARF may be used if Final FARS is not available) and State / MPO motor vehicle crash database

Establish Performance Targets

- Annual targets are established in the HSIP report
- One target must be established for each performance measure
- Target options for any or all of the measures
  - Any number of Urbanized targets
  - 1 non-Urbanized target
- 3 common measures must be identical to HSP targets
  - Number of Fatalities
  - Fatality Rate
  - Number of Serious Injuries

Role of the MPOs

- Establish targets not later than 180 days after the State establishes and reports targets in the State HSIP annual report
- State DOT and MPOs must coordinate to the max extent possible when setting targets
- MPOs can.....
  - Establish your own target OR.....
  - Support State target
  - Can make a different choice for each performance measure
- If the MPO establishes a numerical target for Fatality / Serious Injury Rate, you must provide...
  - VMT estimate
  - Estimation methodology explanation
- MPO targets are reported to the State

Multi-State MPOs

- Establish one target for the entire MPO area

OR

- Agree to plan and program projects that support the targets established for each State
- Will require coordination between MPO and all States involved

Gauging Performance (Example Only)*

Performance Measures	5 Year Rolling Averages			Target Achieved?	Better than Baseline?	Met or Made Significant Progress?
	TARGET	ACTUAL	BASELINE			
	2014-2018	2014-2018	2012-2016			
Number of Fatalities	465.0	472.4	474.0	No	YES	YES (4 out of 5 targets met or made significant progress)
Fatality Rate	0.980	0.990	0.988	No	No	
Number of Serious Injuries	2,560.0	2,578.4	2,703.2	No	YES	
Serious Injury Rate	4.126	4.214	4.288	No	YES	
Number of Non-motorized Fatalities and Serious Injuries	108.0	107.6	113.2	YES	N/A	

**Example only for determination of CY 2018 targets*

Evaluating MPO Target Achievement

- Held accountable through Statewide and Metropolitan Planning process
  - Metropolitan Transportation Plan
  - Transportation Improvement Plan
  - Statewide Transportation Improvement Plan
  - Certification process

Reporting Targets for the HSIP

- States report targets to FHWA
- MPOs report targets to State
  - Include methodology and VMT estimate for numerical rate targets (fatality and serious injury rate)
- Documented and cooperatively developed process is the key to success
  - How will data get shared?
  - How will you retrieve the data?
  - How will targets get reported to STATE?
  - How will MPO performance be assessed?

Timeline

Spring 2017

Coordinate 2014 – 2018 targets

July 1, 2017

THSO reports 3 identical HSIP targets in HSP to NHTSA

August 31, 2017

TDOT reports 2014 – 2018 HSIP targets in the HSIP Annual Report

January 1, 2018

CY2018 starts for 2014 – 2018 HSIP targets

Feb 27, 2018

Last day for MPOs to establish 2014 – 2018 HSIP targets

Spring 2018

Coordinate 2015 – 2019 targets

July 1, 2018

THSO reports 3 identical HSIP targets in HSP to NHTSA

August 31, 2018

TDOT reports 2015 – 2019 HSIP targets in the HSIP Annual Report

December 31, 2018

CY2018 concludes for 2014 – 2018 HSIP targets

January 1, 2019

CY2019 starts for 2015 – 2019 HSIP targets

Feb 27, 2019

Last day for MPOs to establish 2015 – 2019 HSIP targets

Spring 2019

Coordinate 2016 – 2020 targets

July 1, 2019

THSO reports 3 identical HSIP targets in HSP to NHTSA

August 31, 2019

TDOT reports 2016 – 2020 HSIP targets in the HSIP Annual Report

December 31, 2019

CY2019 concludes for 2015 – 2019 HSIP targets

Assessment Of Significant Progress

December 2019

FHWA determines if STATE has met or made significant progress toward meeting 2014 – 2018 HSIP targets

March 2020

FHWA reports finding to STATES indicating whether the STATE has met or made significant progress towards meeting 2014 – 2018 HSIP targets

June 30, 2020

STATES that did NOT meet or make significant progress toward meeting 2014 – 2018 HSIP targets must submit an HSIP Implementation Plan to FHWA

October 1, 2020 – September 30, 2021

States that did not meet or make significant progress toward meeting 2014 – 2018 HSIP targets must use obligation authority equal to the FY 2017 HSIP apportionment only for highway safety improvement projects.

December 2020

FHWA determines if STATE has met or made significant progress toward meeting 2015 – 2019 HSIP targets

March 2021

FHWA reports finding to STATES indicating whether the STATE has met or made significant progress towards meeting 2015 – 2019 HSIP targets

References

- 23 CFR Part 924 - HSIP
  - https://www.ecfr.gov/23CFRPart924
- 23 CFR Part 490 – Safety PM
  - https://www.ecfr.gov/23CFR490
- FHWA Safety Performance Measures Fact Sheets
  - https://safety.fhwa.dot.gov/hsip/spm/
- FHWA Safety Target Coordination
  - https://safety.fhwa.dot.gov/hsip/spm/target-setting_resources.cfm
- NCHRP Report 666
  - http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_666.pdf

Questions/Comments

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Data Analysis

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Tennessee Department of Safety and Homeland Security

Setting Targets: Performance Measures

- Fatalities
- Fatality Rate (per 100 million VMT)
- Serious Injuries
- Serious Injury Rate (per 100 million VMT)
- Non-Motorist Serious Injuries and Fatalities

Five Year Moving Averages

Setting Targets: Data and Sources

- Fatalities

  NHTSA Fatality Analysis Reporting System

- Serious Injuries

  TN Dept. of Safety and Homeland Security (TDOSHS)

- Vehicle Miles Traveled (VMT)

  OHPI Highway Performance Monitoring System

- Non-Motorist Crash Data

  TDOSHS

Setting Targets: Data and Sources

Other Data and Sources

- Fatalities

  TDOSHS Fatality Analysis Reporting System

- Vehicle Miles Traveled (VMT)

  TDOT Highway Performance Monitoring System

- Licensed Drivers

  TDOSHS

Setting Targets: Data and Sources

Other Data and Sources

- Population

  TN Dept. of Health

  U. S. Census Bureau

- Registered Vehicles

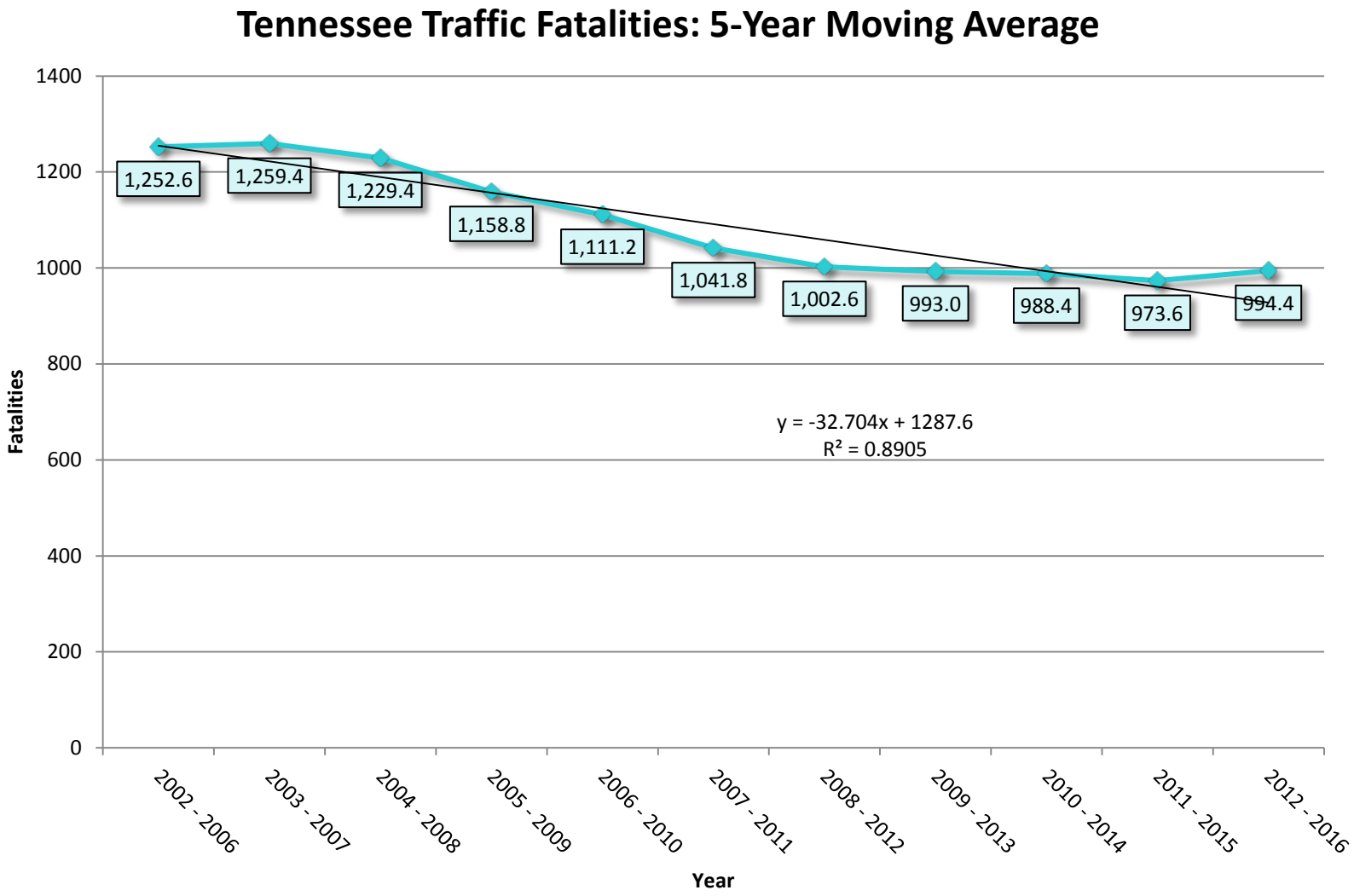
  TN Dept. of Revenue

- Other Data

Setting Targets: Safety PM Targets

Performance Measures	5 Year Rolling Averages	
	BASELINE	TARGET
	2012-2016	2014-2018
Number of Fatalities	994.4	1,021.4
Fatality Rate	1.352	1.337
Number of Serious Injuries	7,324.4	7,630.8
Serious Injury Rate	9.951	9.982
Number of Non-motorized Fatalities and Serious Injuries	432.6	493.2

Setting Targets: Fatalities



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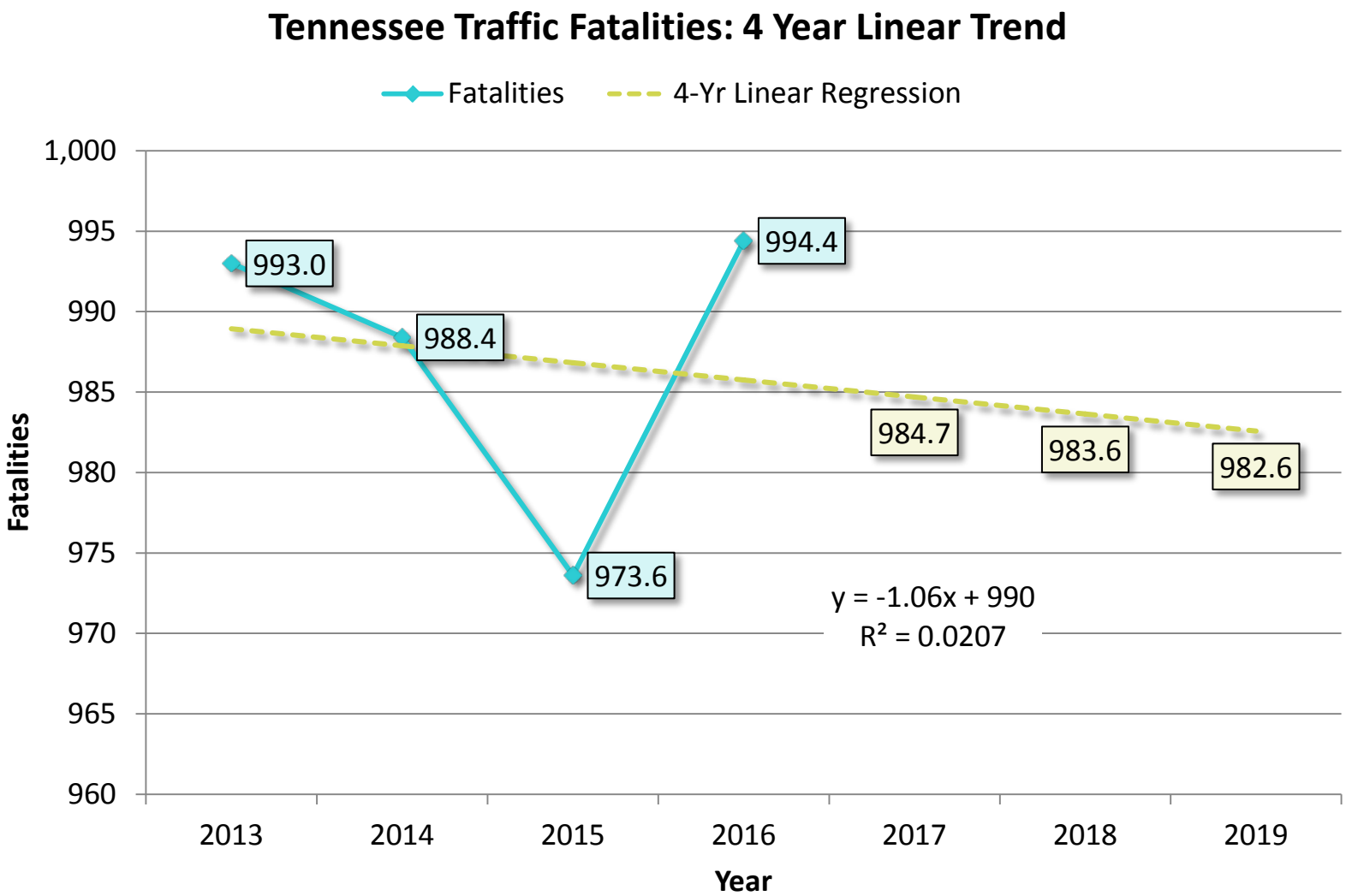

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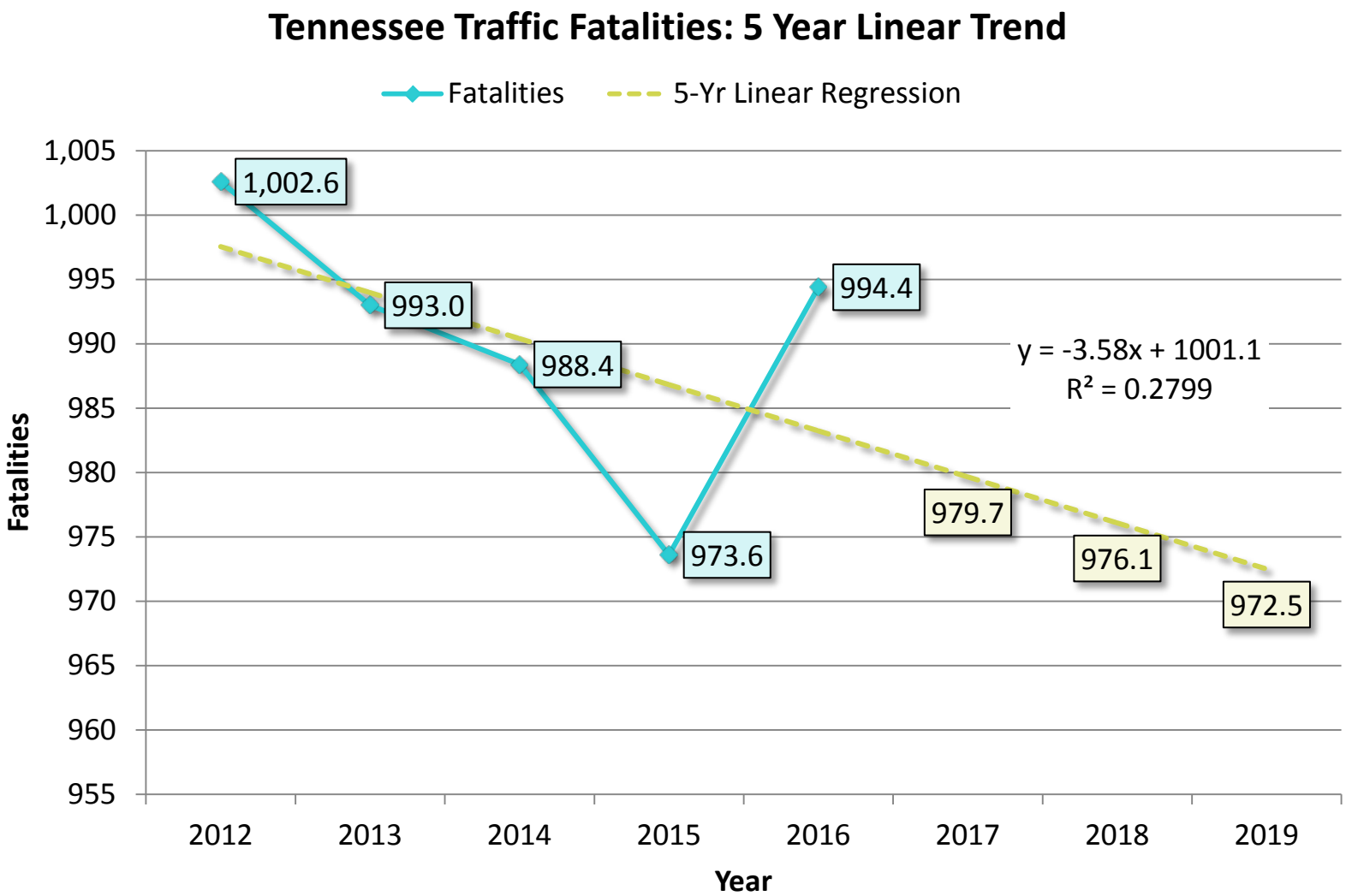
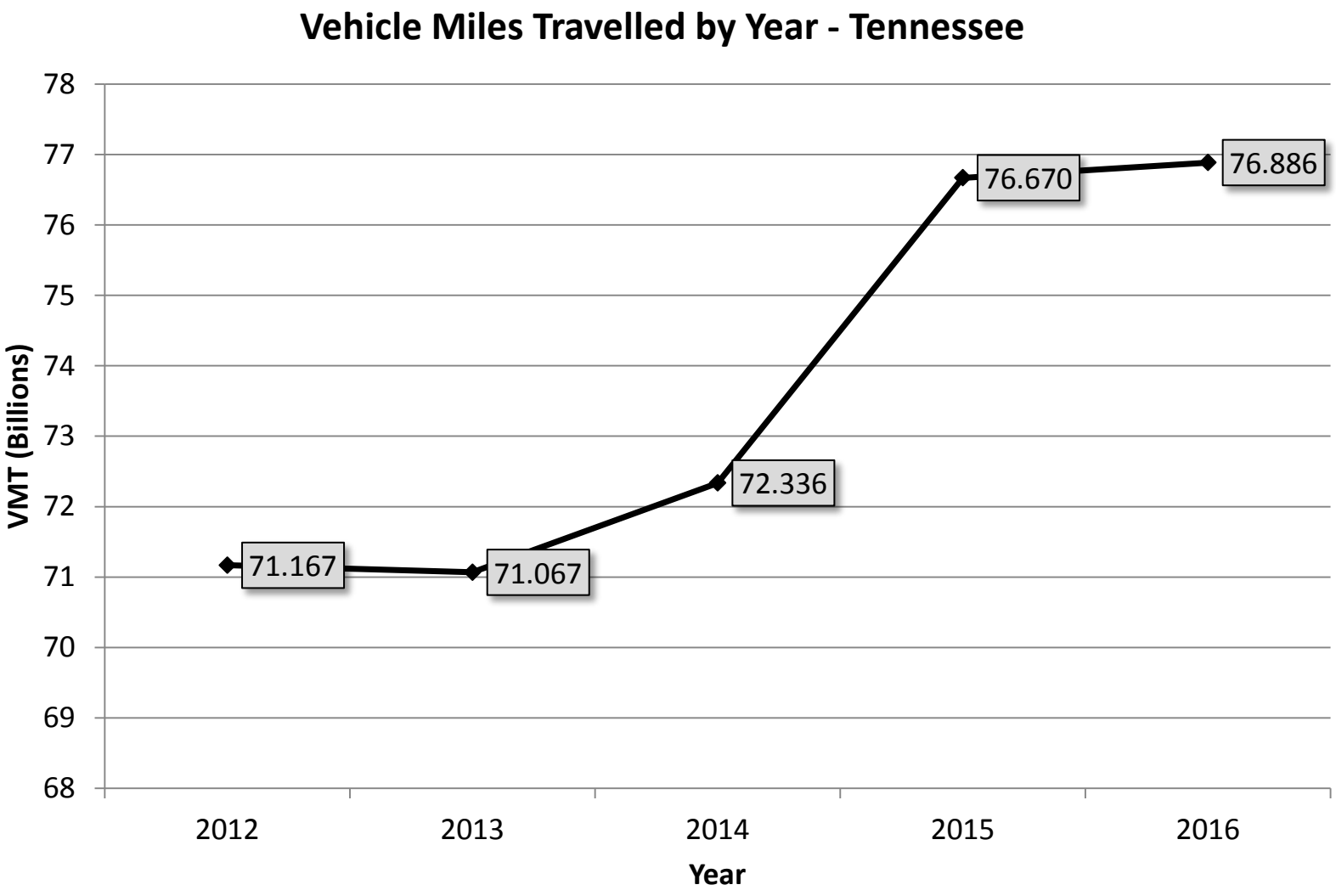


Setting Targets: Fatality Rate



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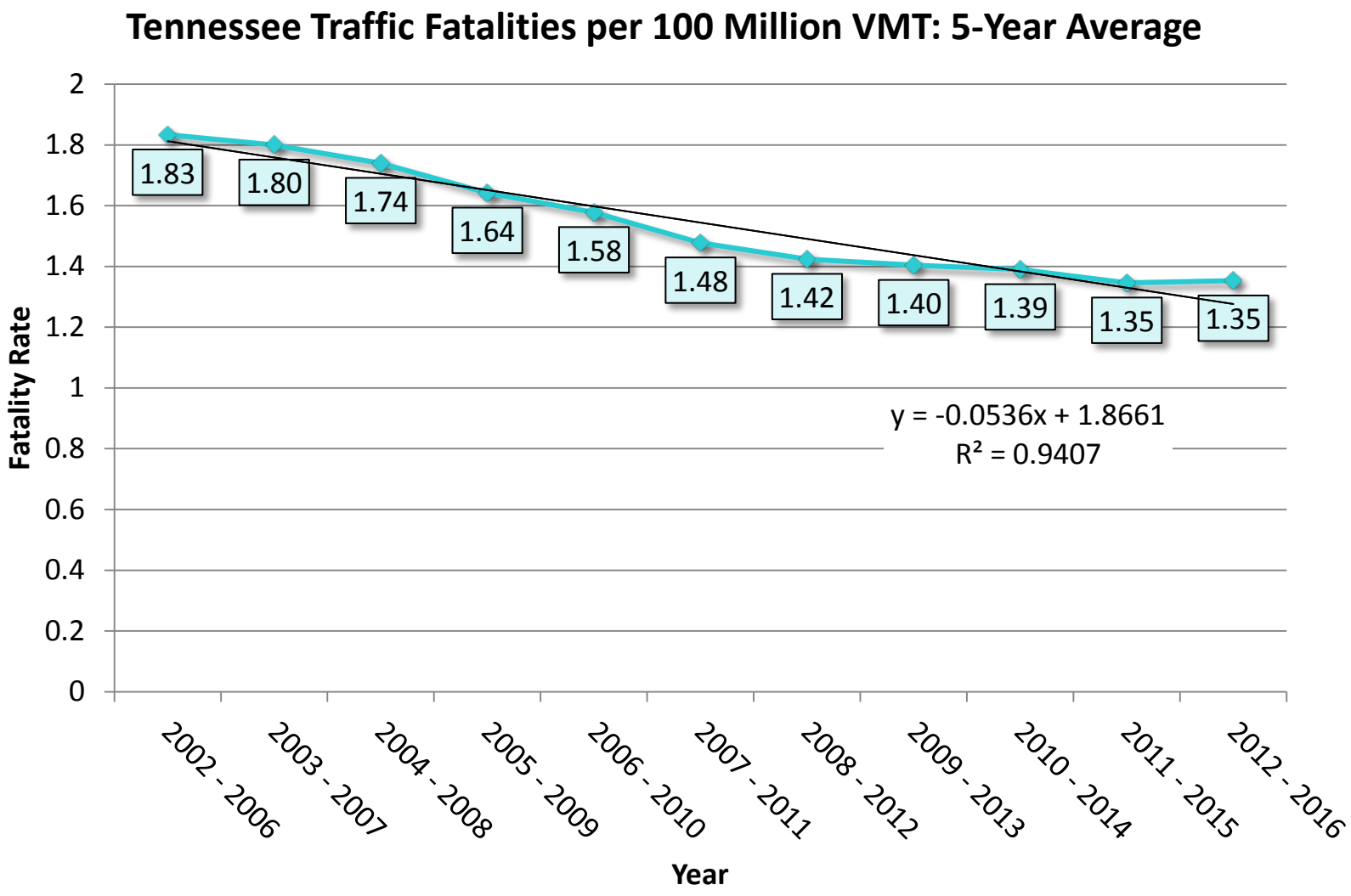

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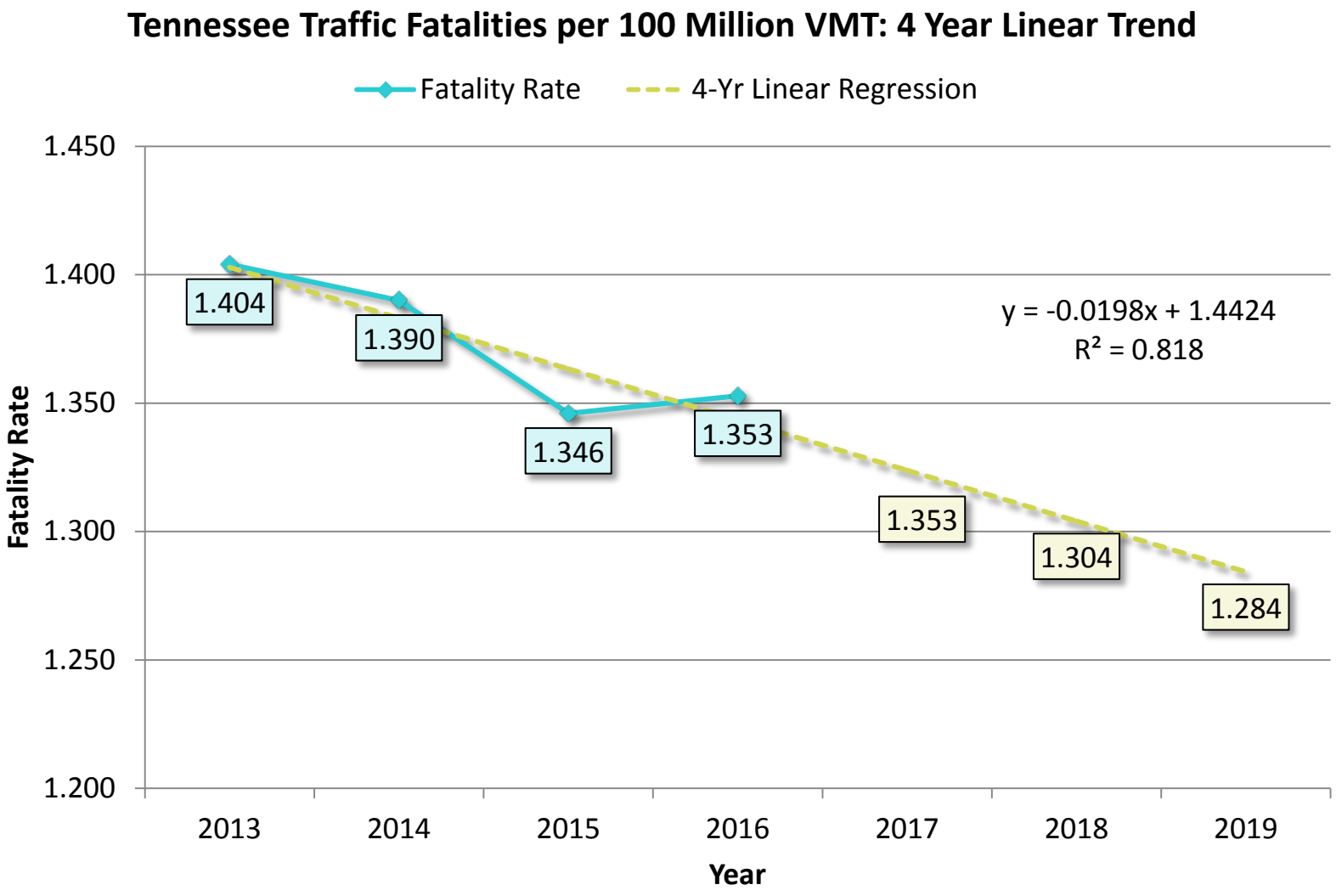

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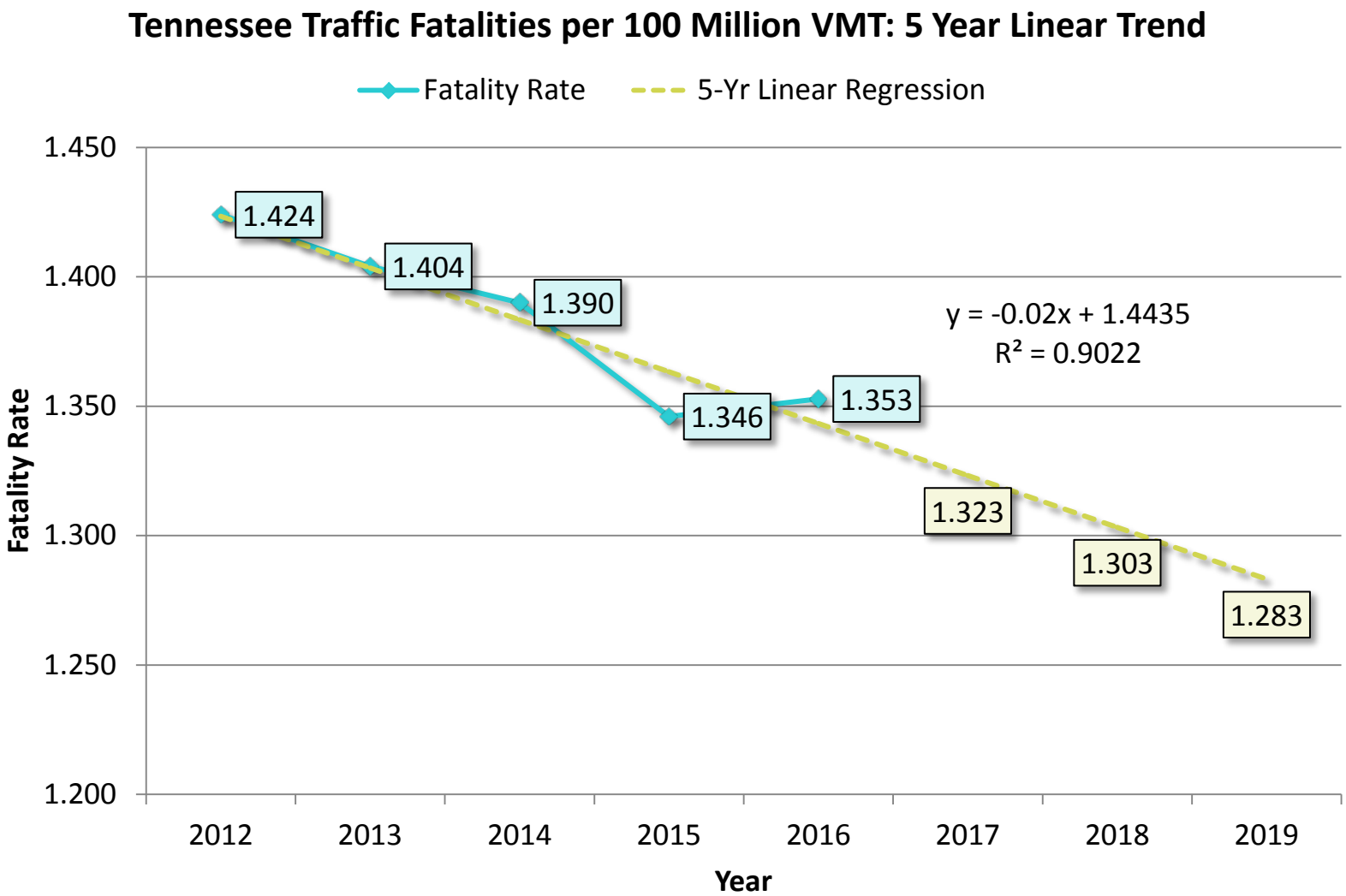
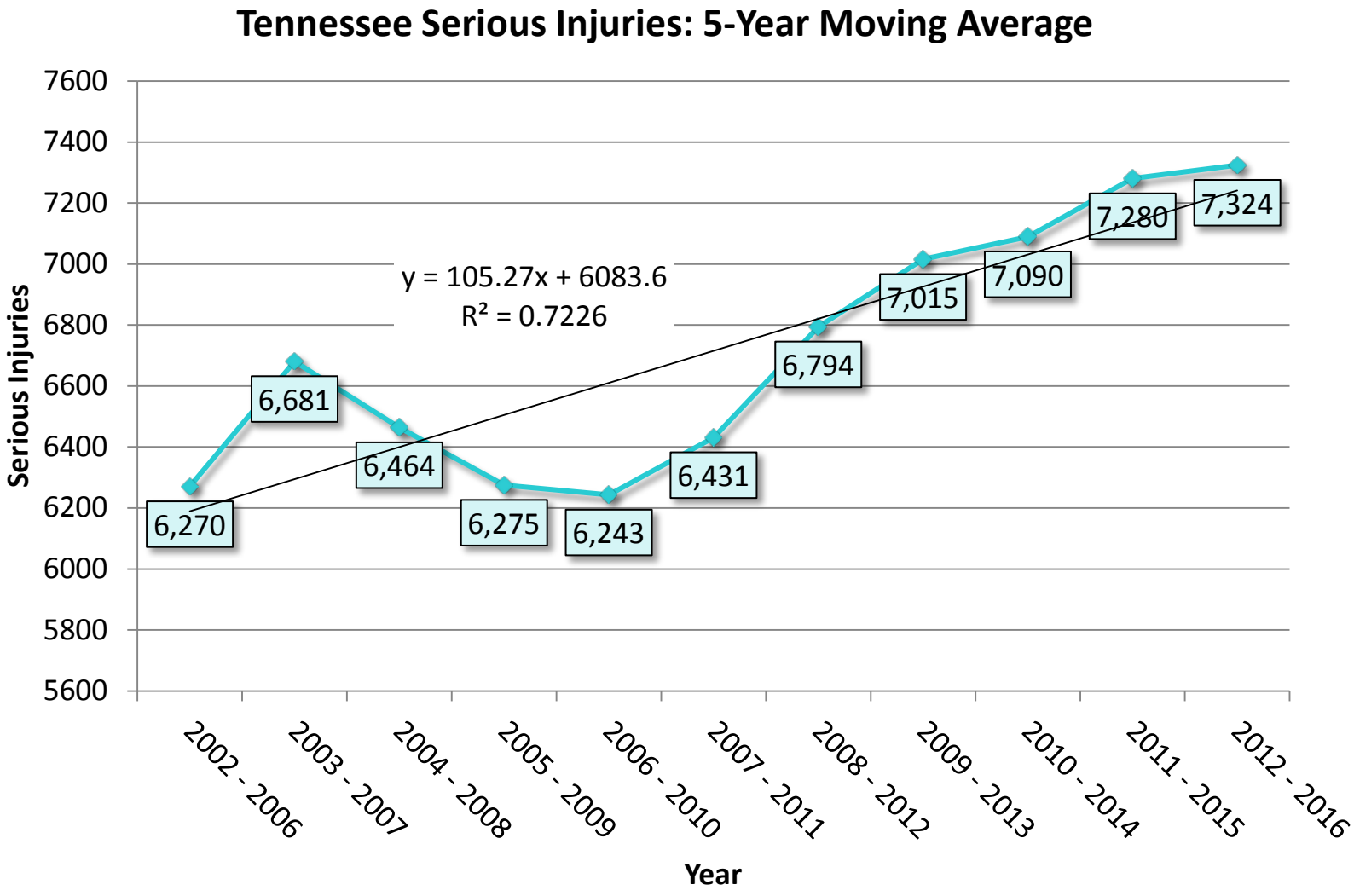


Setting Targets: Serious Injuries



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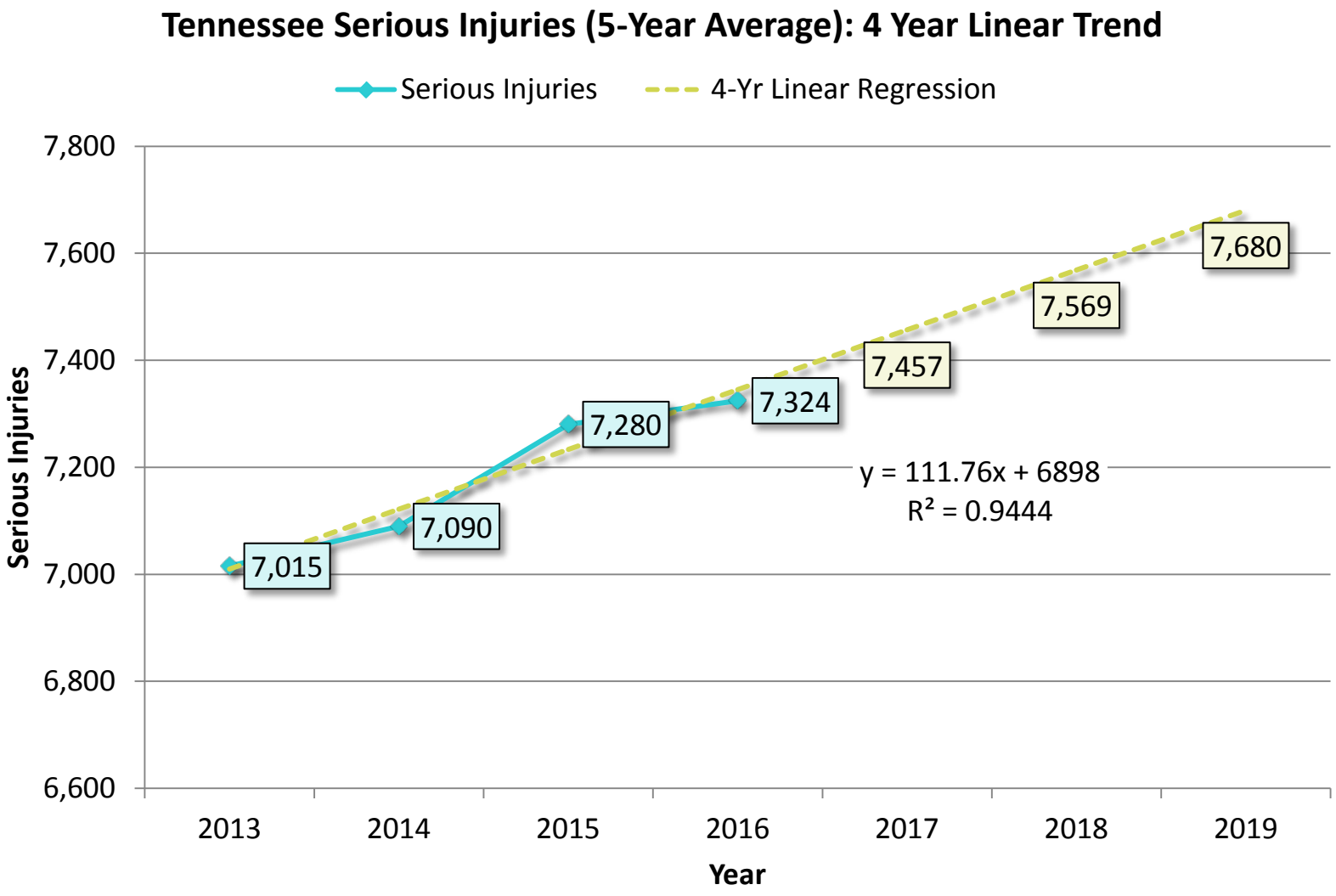

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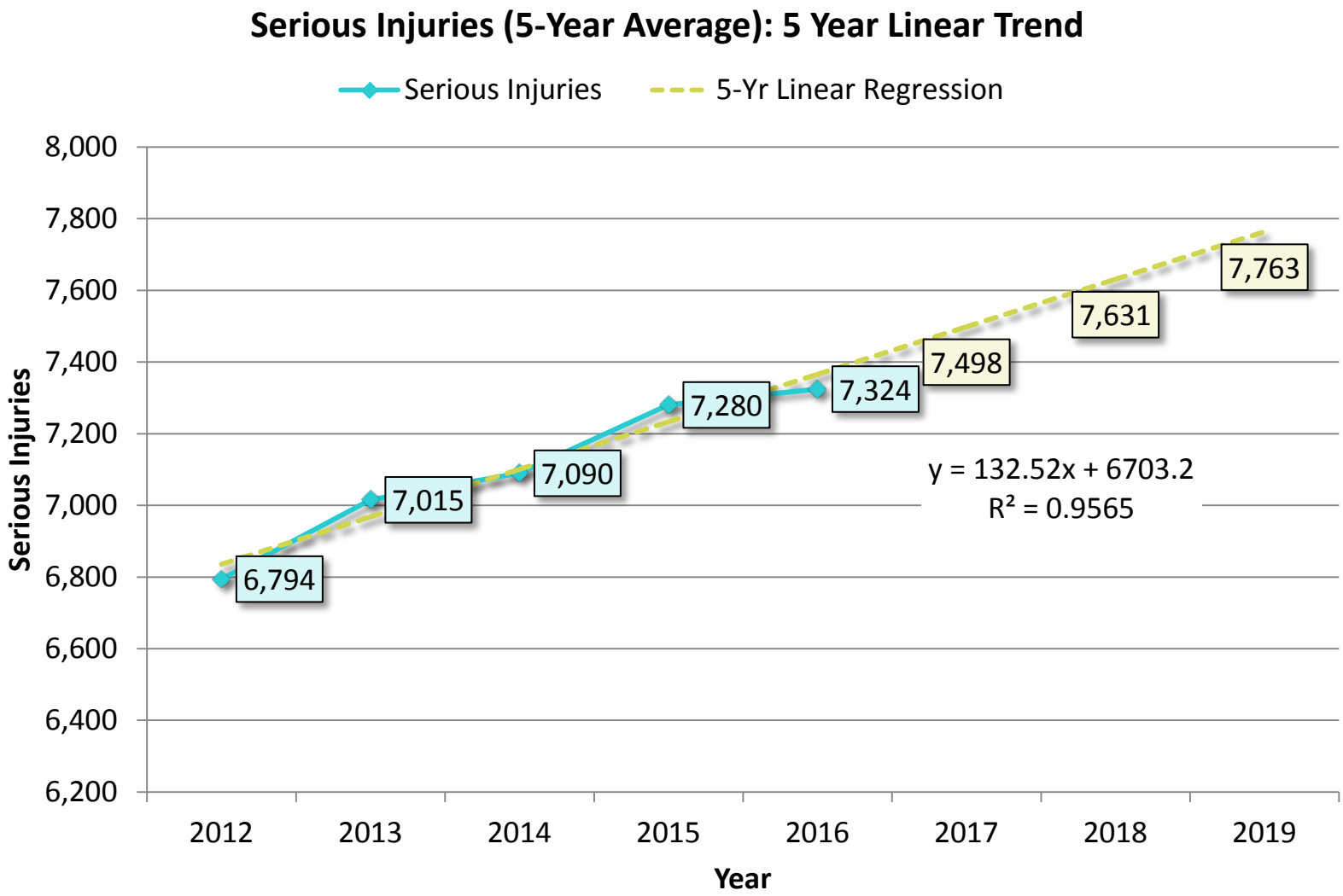
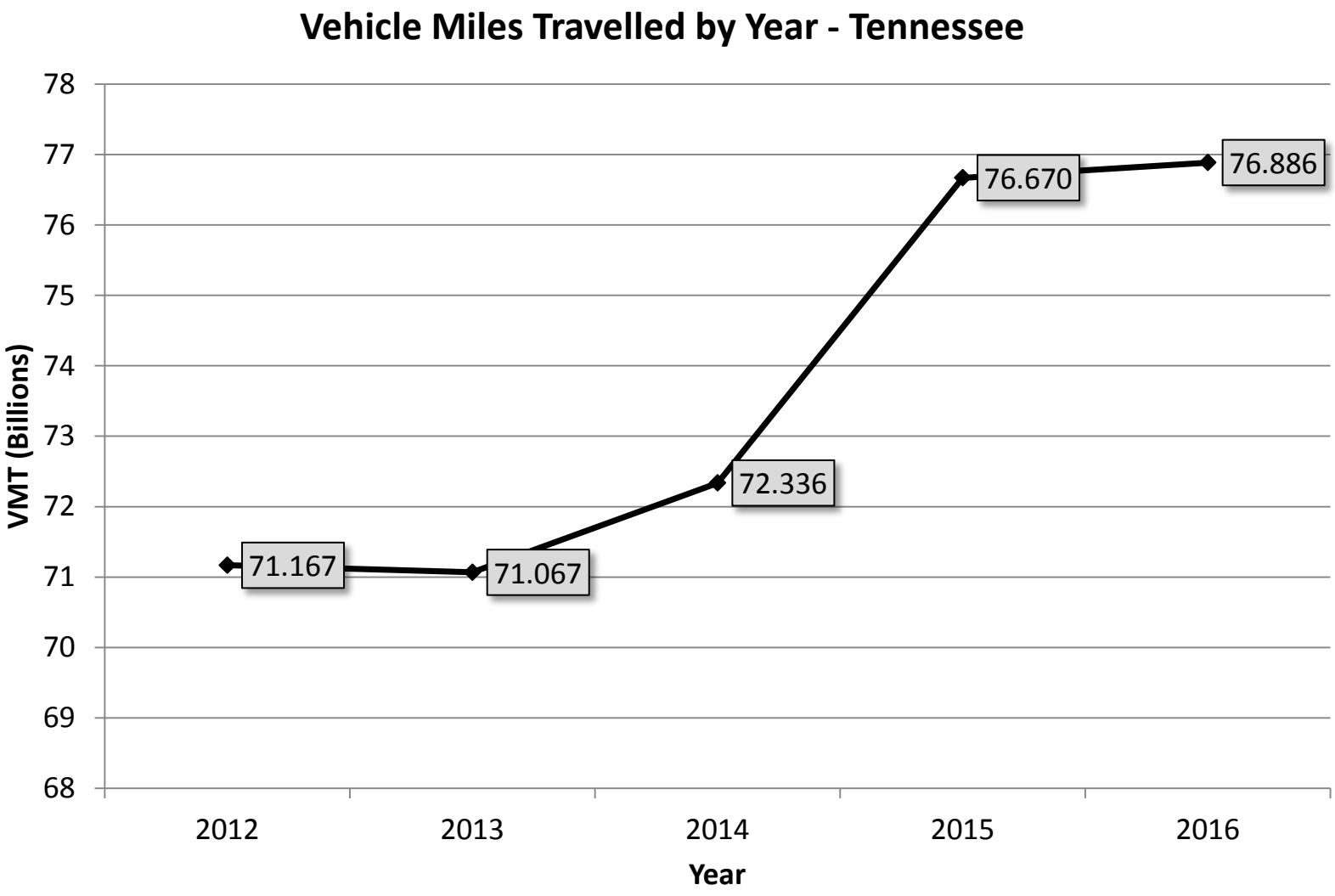


Setting Targets: Serious Injury Rate



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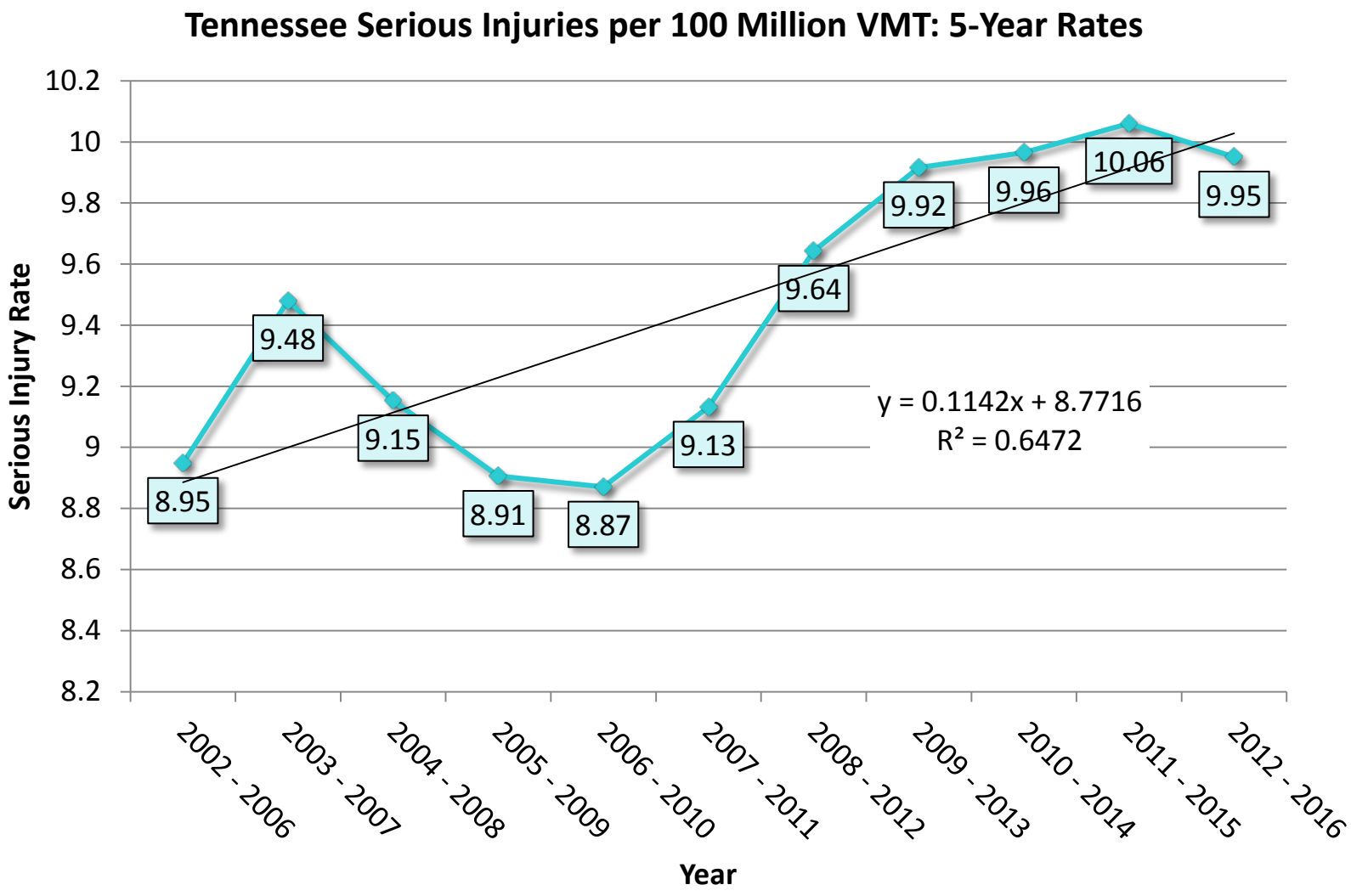

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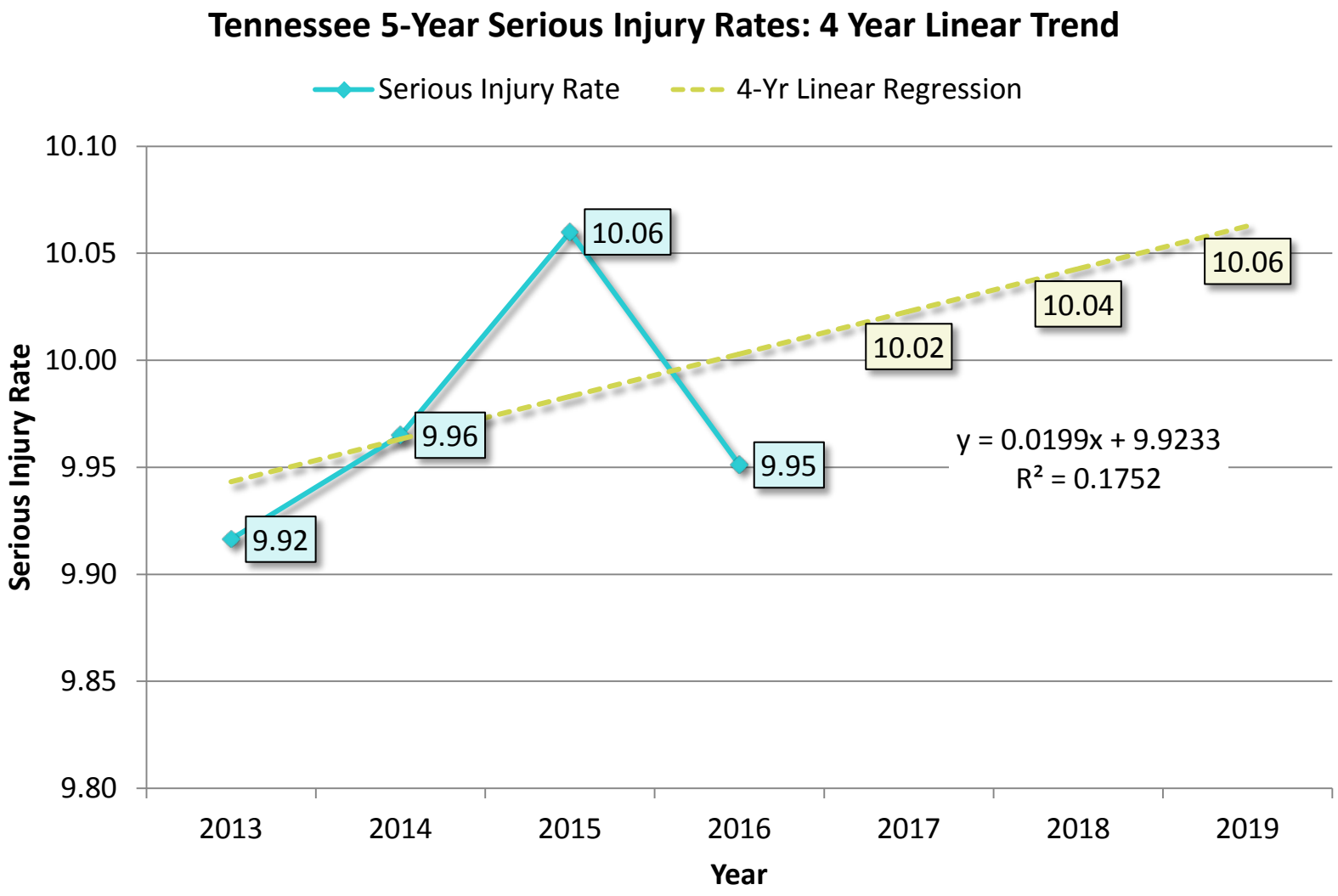

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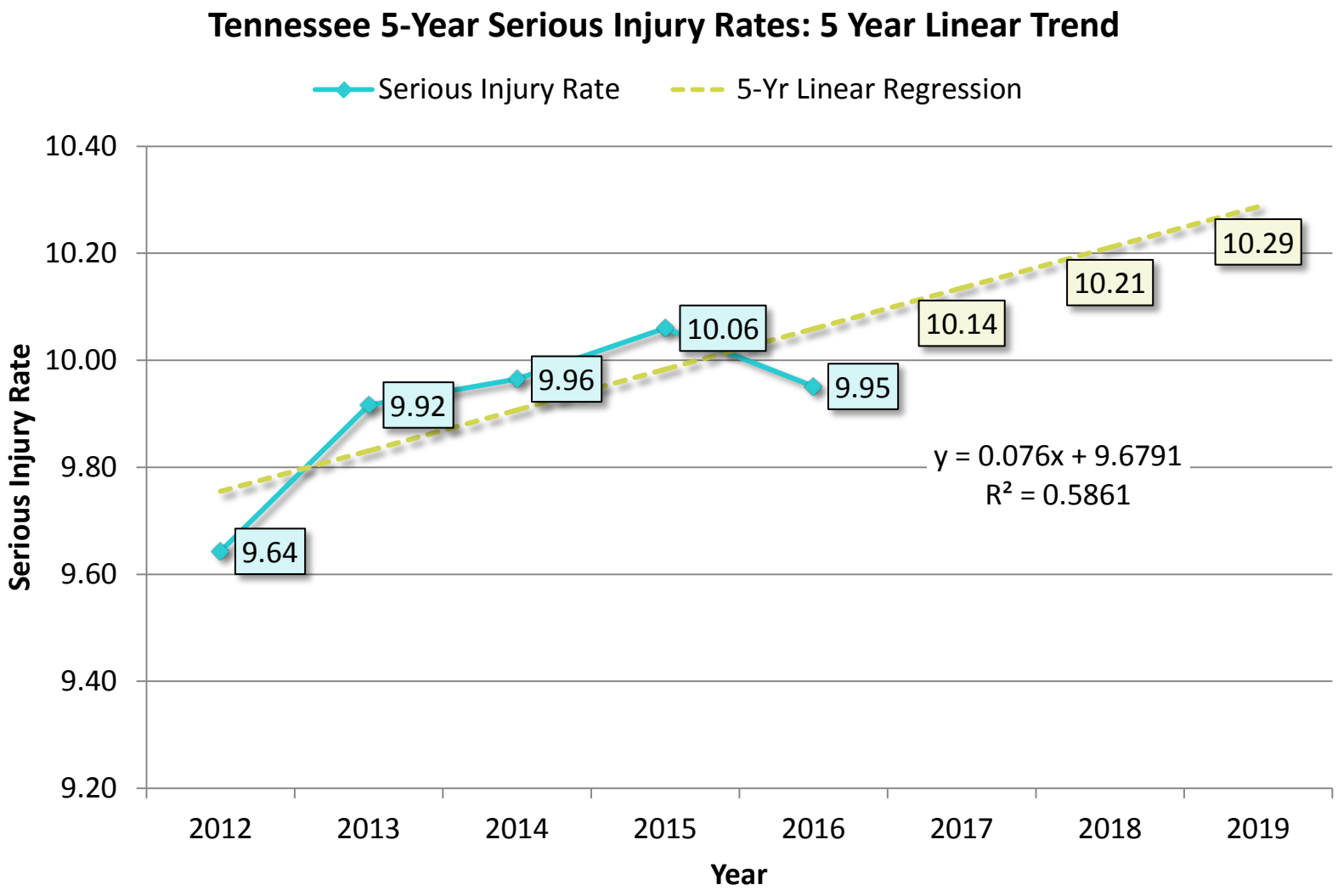
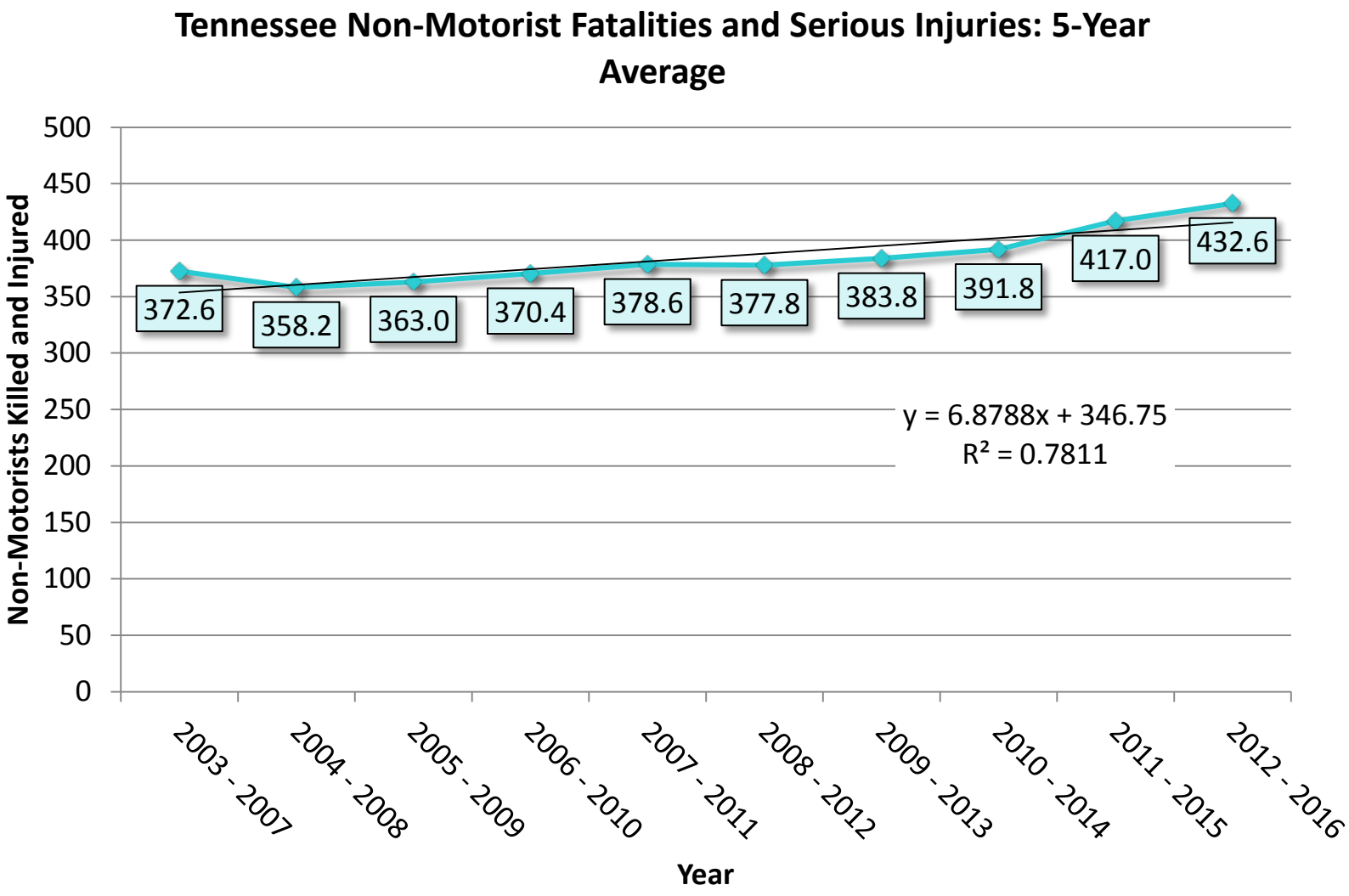
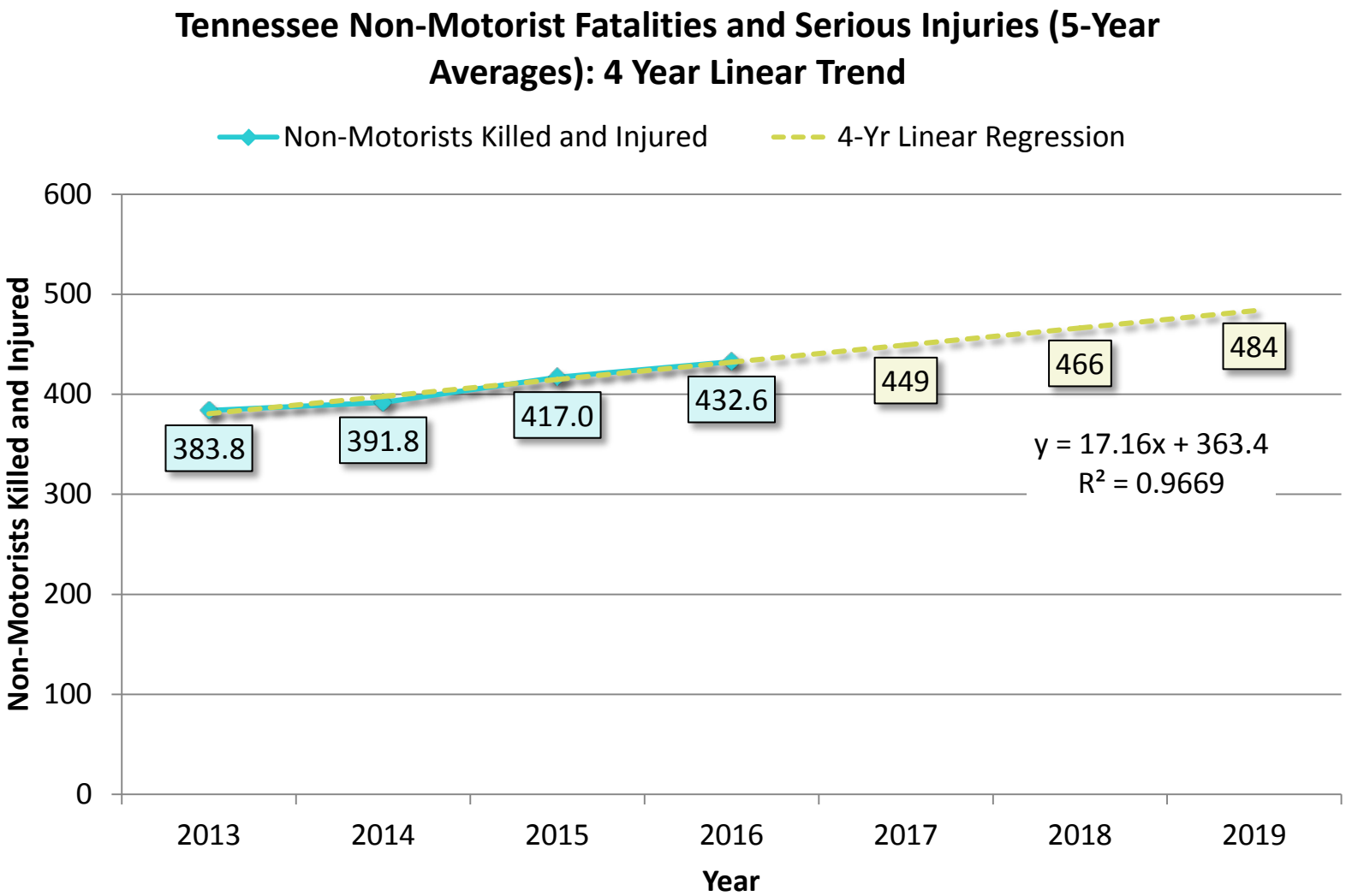


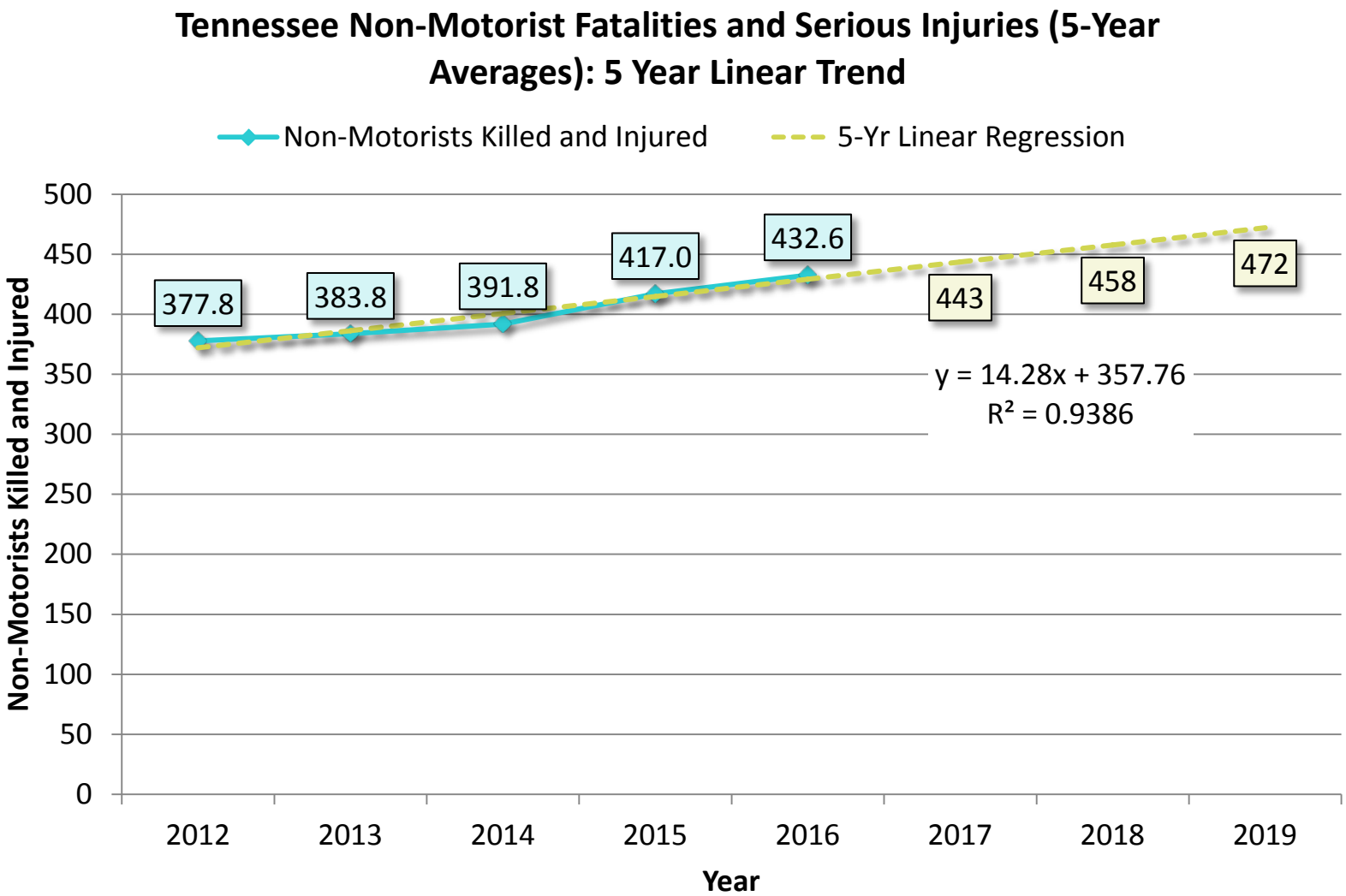
Setting Targets: Non-Motorists Fatalities and Serious Injuries



Setting Targets: Non-Motorists Fatalities and Serious Injuries



Setting Targets: Non-Motorists Fatalities and Serious Injuries



Setting Targets: MPO Data

- All Electronic Crash Reporting Since Jan 1, 2015
- Latitude/Longitude
- Complete 5-year baseline data by 2019
- MPOs comprised of whole cities and/or counties

Setting Targets: Questions and Contact

QUESTIONS?

Contact Information

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Qualitative Perspective

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Target Setting – Influencing Factors

- Identify
  - What factors may impact ability to make progress on target?
    - External
      - Political, Economic, Social, Technology, Legal, Environmental
    - Internal
      - Resources, Goals, Programs/Plans, Commitments, Policies, Span of Control
- Assess
  - What is likelihood and impact of factors?
  - How may the factors change across time span of target?

SWOT Process

- Assessment form developed
- Distributed to working group members
- Input compiled by Office of Strategic Planning
- 144 responses documented and sorted
- Sub-group assessed factors by:
  - Likelihood
  - Impact
  - Need for additional information
- Verified factors through data, research, trends

Key Factor Considerations

- Behavioral- Distracted driving top scored item; no current strong countermeasure programs
- Non-motorized fatalities - Greater mix of cars, bikes, and pedestrians sharing the roadway; distracted walking
- Population/Travel Growth - Increasing VMT; population growth in urban areas
- Technology – improvements thru technology take time to implement/see results; electronic devices as source of distraction
- Funding/Resources - during target time period anticipate levels to remain same
- Economy – positive growth in TN; gas prices down

Questions/Comments

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MPO Coordination

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Tennessee Department of Transportation

Establishing MPO HSIP Targets

- To provide MPOs with flexibility, MPOs may support all the State HSIP targets, establish their own specific numeric HSIP targets for all of the performance measures, or any combination.

- MPOs may support the State HSIP target for one or more individual performance measures and establish specific numeric targets for the other performance measures.

When Are Targets Established?

- MPOs must establish HSIP targets within **180 days** of the State establishing and reporting its HSIP targets.
- This will be **no later than February 27** of each year, depending on when TDOT establishes its targets.

TDOT Coordination & Assistance

- TDOT's Community Planners will have an abbreviated version of the presentation you heard today to present to each MPO's Technical Committee and Executive Board.

- Based on this information, the MPO Executive Board will make a decision to adopt specific numeric targets, either TDOT's or it's own.

- The MPO will be expected to include policies, programs, and projects in the LRTP and TIP that support the selected targets.

How/Where Are Targets Reported?

- MPOs will report targets to TDOT's Long Range Planning Division. TDOT in turn will make the targets available to FHWA upon request.
- The MPO, TDOT, and transit agency(s) will need to cooperatively develop a process for sharing performance data and reporting targets and performance.

Coordination With MPO Plans

- Long Range Transportation Plans (LRTPs) updated on or after **May 27, 2018** must include safety performance measures and targets.

  - Clarksville – February 20, 2019
  - Memphis – March 15, 2020

- MPOs must include baseline safety performance, HSIP targets, and progress toward achieving HSIP targets in the System Performance Report in the LRTP. (Not sure at this time what the report will look like.)

Coordination with MPO Plans (continued)

- Transportation Improvement Programs (TIPs) updated on or after **May 27, 2018** must include a description of how the TIP contributes to achieving the performance targets in the LRTP.

- All MPOs will develop and adopt a new FY 2020 – FY 2023 TIP during calendar year 2019.

Questions/Comments

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