

**FY
2016**

**Maintenance Conditions
of
Kentucky Highways**

Statewide

**Division of Maintenance
Operations & Pavement
Management Branch**



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2016 MAINTENANCE RATING PROGRAM REPORT

EXECUTIVE SUMMARY

Introduction

The Kentucky Transportation Cabinet (KYTC) has surveyed the state's roadside conditions in order to estimate the needs for routine maintenance. The 2016 Maintenance Rating Program (MRP) inspections were completed statewide during summer 2015. The purpose of this report is to provide the results of the inspections and assess the current condition of the highway infrastructure maintenance activities. The report is broken into two parts – a statewide report used for higher level analysis; and individual district reports used on a local level for management decisions.

Background

The KYTC Maintenance Rating Program (MRP) is a systematic measurement process that uses annual performance measurements of highway infrastructure data to support planning and management decisions regarding maintenance activities and resources. Data collected from the MRP is used in conjunction with the cabinet's Operations Management System (OMS) to calculate the maintenance budget for each of the twelve highway districts.

Target for Sustained Performance

The **target performance level** score was set at **80** (service level B-good) for each highway district and for the statewide score for all highways.

The target serves as a benchmark for districts to help identify best practices among high performers and opportunities for improvement. The statewide target may be increased in the future as the districts reach higher levels of performance.

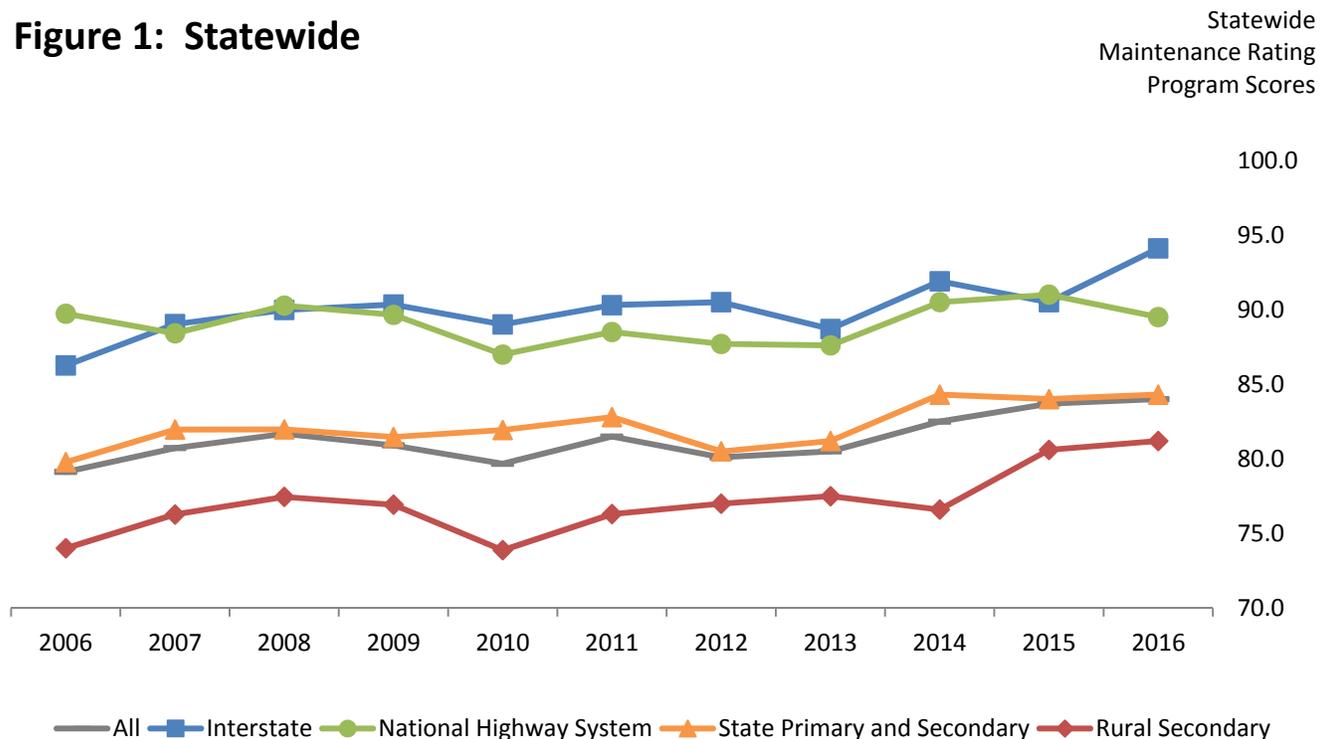
It is generally recognized that the level of service provided on the four road types for all features will not be the same. Interstate highways with higher traffic volumes and higher speed limits need to be maintained at a higher level of service than Rural Secondary roads. It is the responsibility of each district to set target values for every feature for each of the four road types to achieve the target score of 80.

Results

Table 1: Statewide Maintenance Levels of Service

FY 2016 KYTC MAINTENANCE STATEWIDE SCORES			
CLASSIFICATION	SCORE	GRADE	COMMENTS
Interstates	94.1	A	Substantial Improvement
National Highway System	89.5	B	Slight Drop
State Primary and Secondary	84.3	B	Constant
Rural Secondary	81.2	B	Slight Improvement
All Roads	84.0	B	Slight Improvement

Figure 1: Statewide



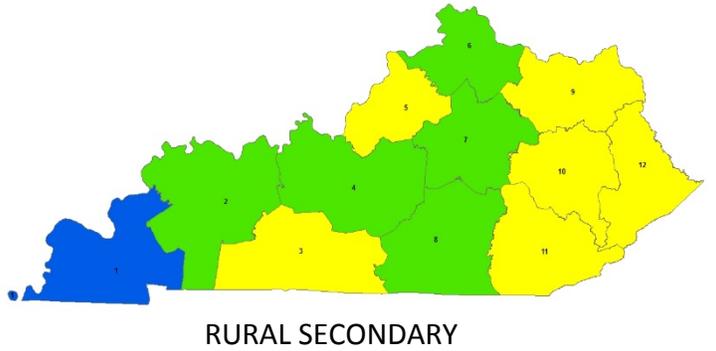
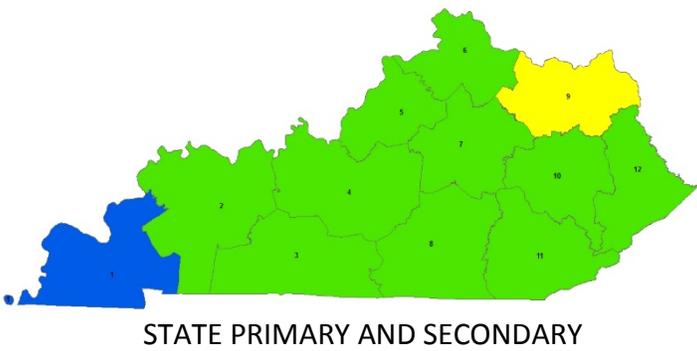
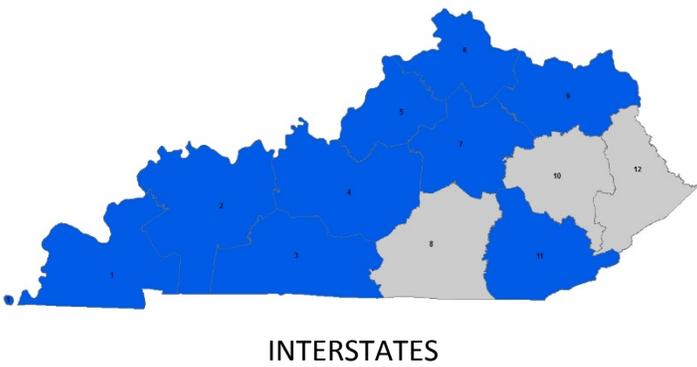
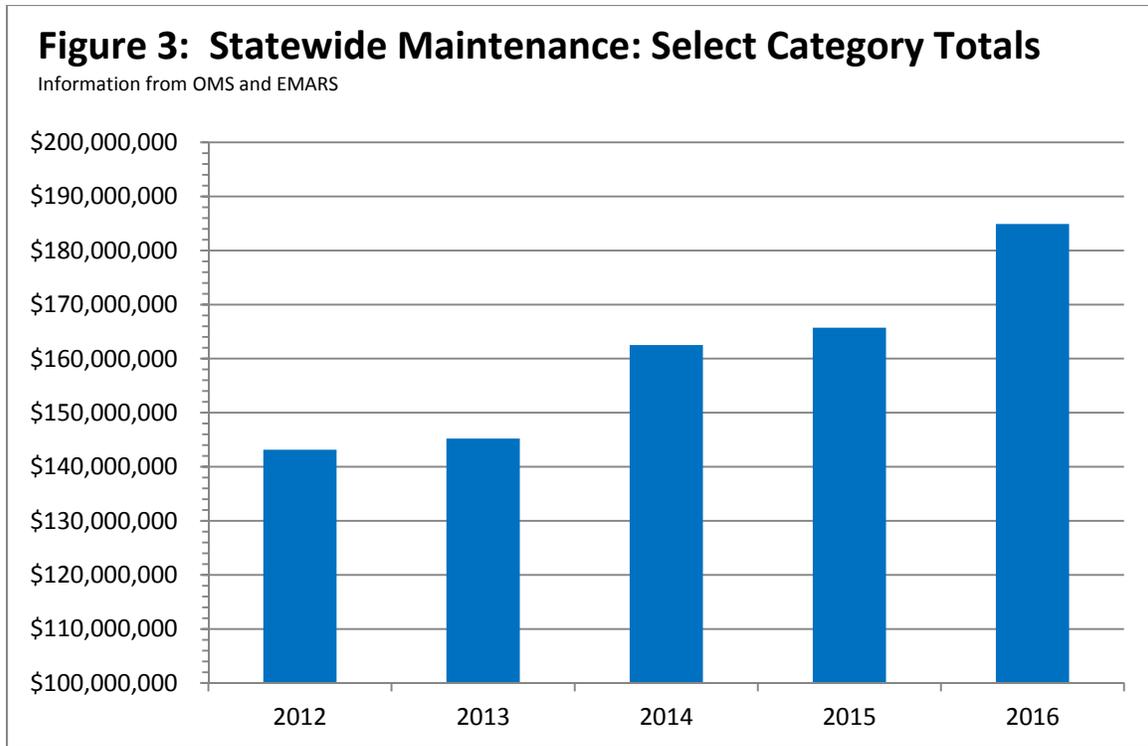


Figure 2: District Maintenance Levels of Service



The provided figure shows the statewide total expenditures for the following categories; Surface, Shoulder, Roadside, Tree/Brush, Mowing, Drainage, and Signs/Marking.

The Statewide scores have continued to improve as a whole over the last five (5) fiscal years. For the same time frame; the expense totals of the select categories used in calculating the Maintenance Rating have also increased.

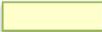
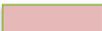
Maintenance spending for the select categories includes; resurfacing potholes and surface distresses, repairing slides and road shoulders, removing visual obstructions such as tree limbs and vegetation, cleaning and spraying center and shoulder striping, as well as repairing and replacing; guardrail, right-of-way fencing, guide and warning signs, and ditches and drainage structures.

There were four natural disaster/storm incidents during the 2014-2015 fiscal year that could contribute to the statewide increased maintenance expenditures. Roadside slide repair, drainage, and ditch repair to correct the winter storms, flooding, and/or tornado damage produced throughout the fiscal year contributed to the maintenance expenditures.

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TABLE 2 - DISTRICT MAINTENANCE FEATURE SCORES
All State Roads - Fiscal Year 2016

District:	1	2	3	4	5	6	7	8	9	10	11	12
Rideability Index	72.3	72.5	76.2	74.4	68.8	67.6	71.3	75.2	72.2	69.2	69.5	71.5
Appearance	99.0	84.9	79.4	71.7	99.5	81.3	92.5	95.1	78.6	95.4	87.6	96.5
Vertical Clearance	86.5	97.1	63.1	75.7	77.0	79.6	84.8	70.5	60.2	53.4	63.8	52.2
Visual Obstructions	93.5	96.3	69.5	97.8	76.1	93.4	91.8	91.5	73.9	84.3	94.6	94.4
Fencing	76.4	94.6	99.6	95.8	95.2	94.6	88.7	74.7	99.4	89.0	94.8	NA
Guardrail Out of Specifications	38.8	81.1	90.9	94.2	77.4	68.2	87.2	63.5	68.7	82.3	69.0	78.2
Guardrail Damaged	99.1	88.2	97.9	98.8	89.1	91.2	96.8	73.4	77.2	86.8	82.0	88.4
Attenuators/Rail Ends Damaged	NA	90.6	81.1	99.1	88.6	75.5	93.9	80.9	90.4	79.2	78.6	81.2
Pavement Potholes	91.8	78.1	88.9	76.0	65.2	86.1	92.6	82.9	70.4	81.6	66.3	62.6
Rutting	76.0	81.7	89.5	95.6	86.8	70.1	85.8	79.5	78.1	90.6	76.0	82.7
Pavement Dropoff	87.2	96.2	92.8	83.5	90.8	96.4	90.6	83.0	66.9	70.0	91.6	68.2
Shoulder Dropoff	91.6	87.8	67.4	60.2	68.6	66.9	82.8	74.9	69.2	79.8	67.2	70.5
High Shoulder	98.4	94.4	73.8	96.3	77.0	93.2	89.7	93.5	61.0	88.4	84.3	84.6
Shoulder Potholes	97.7	83.8	91.0	56.4	76.7	81.2	95.0	86.5	80.2	76.3	71.3	85.8
Drains	94.7	86.1	75.5	87.8	85.8	82.9	94.1	85.7	79.8	65.8	83.7	75.4
Ditches	97.9	91.7	61.4	91.4	83.0	86.8	90.4	93.0	68.6	67.8	86.0	68.3
Curbs and Gutters	79.3	88.6	NA	NA	89.2	99.3	79.1	NA	80.0	NA	NA	91.6
White Striping	100.0	99.4	95.6	87.6	93.1	96.7	87.5	89.1	89.5	89.1	84.8	82.0
Yellow Striping	96.2	93.9	92.9	75.6	89.7	95.2	84.0	89.4	77.1	70.8	92.7	80.1
Guide Sign Faces	96.9	81.8	67.3	92.0	93.6	60.6	71.9	90.4	93.8	92.1	100.0	90.6
Guide Sign Assemblies	100.0	100.0	85.5	92.2	67.7	95.1	93.1	98.1	86.6	90.6	99.6	91.0
Warning/Reg Sign Faces	97.0	82.4	81.5	94.6	90.4	75.4	70.2	89.1	87.5	84.1	98.5	98.2
W/R Sign Assemblies	100.0	100.0	93.3	100.0	75.6	88.1	96.8	89.3	86.4	74.4	100.0	87.3

-  Strength - A feature scored at 90 or higher across the district.
-  Within Acceptable Limits - A feature scored between 70 and 90 points across the district.
-  Failing - A feature scored below 70 across the district.
-  Features did not have a sample size large enough to produce statistically valid data

*Some values may appear to be shaded incorrectly due to rounding

Figure 4: Statewide Maintenance Spending

Information from OMS and EMARS

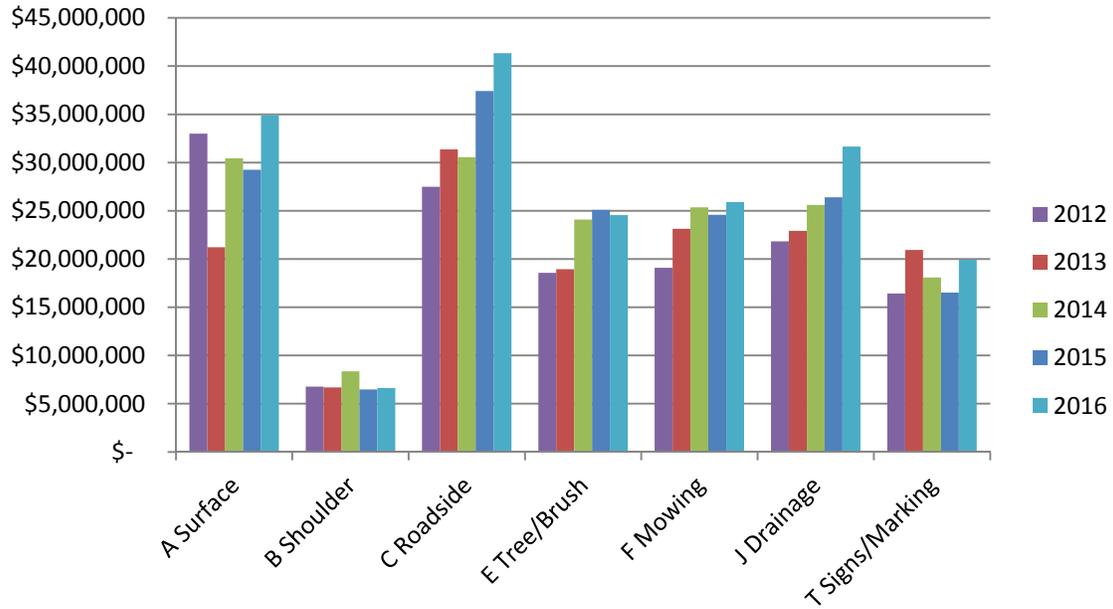
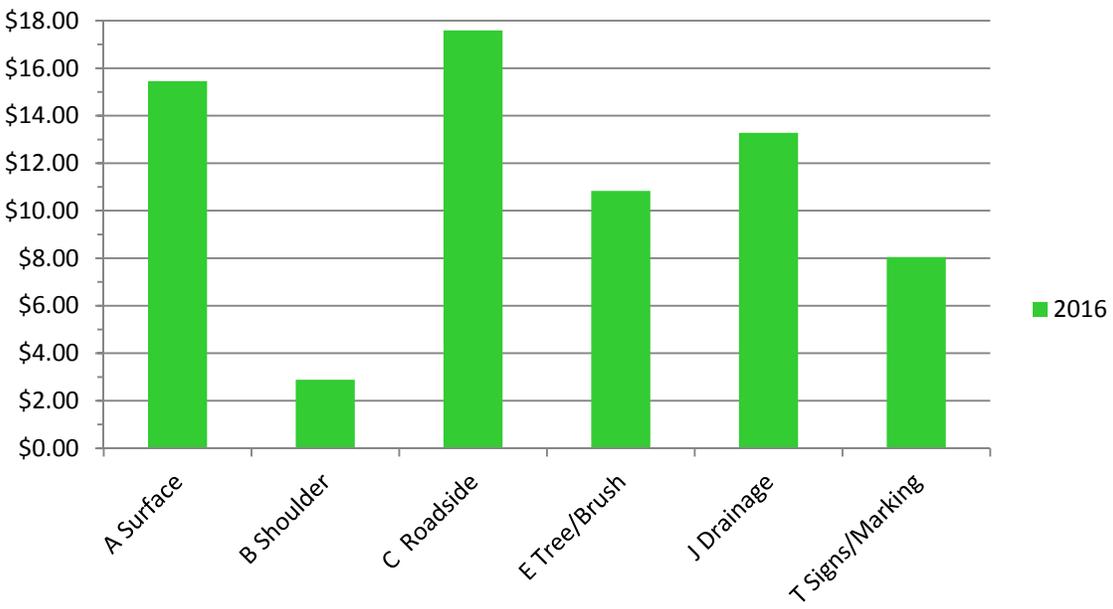


Figure 5: Statewide Amount Spent per Mile per Average Rating

Information from OMS and EMARS



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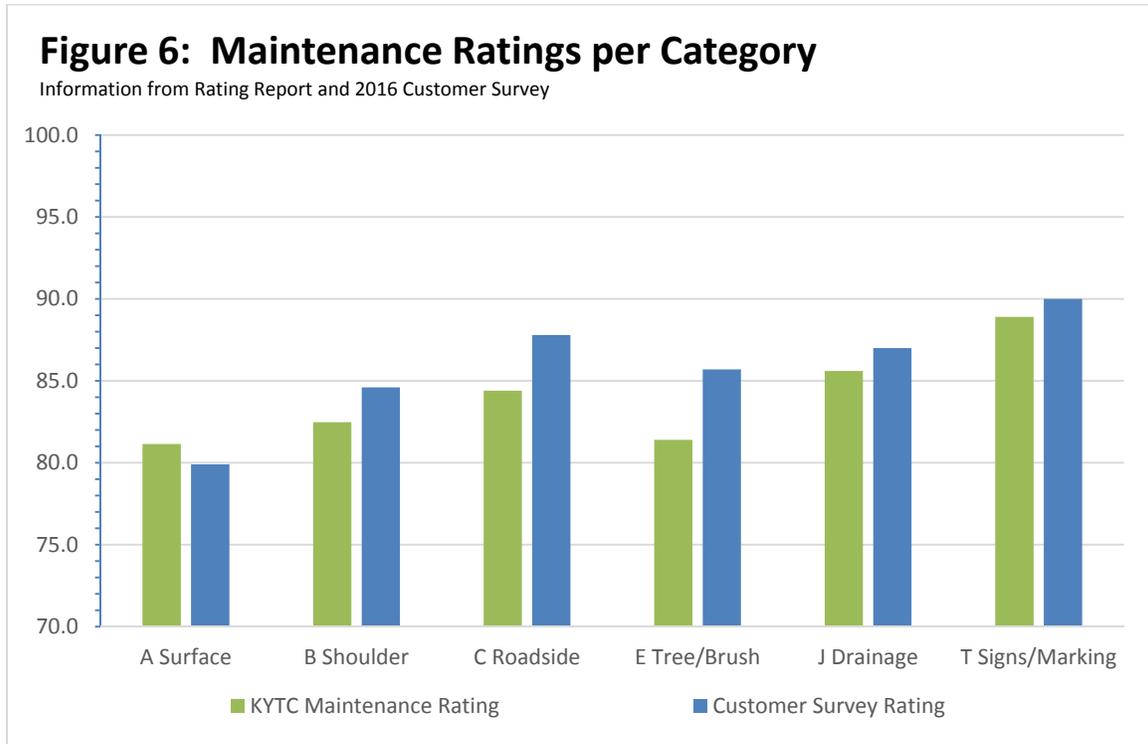
The Figures (Figure 4 and Figure 5) show the expenditures for the last five (5) fiscal years broken out for each category and the price per mile per average rating for each category.

Roadside maintenance expenditures require the most amount per mile to achieve a passing score. Shoulder maintenance expenditures require the least amount per mile for a passing score. There is a demonstrated range of expenditures required to maintain the various roadway features.

Roadside expenditures have consistently increased the last five years. One potential contribution to this increase could be the cost of slide repair, ditch repair and reconstruction, and drainage repair and replacement due to storm events and natural disasters throughout the fiscal year.

2016 Customer Survey

The University of Kentucky, Kentucky Transportation Center (KTC) conducted a telephone survey in early 2016 to evaluate public perception of the maintenance activities of KYTC. The results indicate the areas which have the highest rating for perceived current level of maintenance are; signs, striping, and guardrail. The areas with the lowest rating for perceived current levels of maintenance are pavement surface and potholes, overall appearance, and shoulders.



The provided figure (Figure 6) shows the Maintenance Rating scores and 2016 Customer Survey Rating scores by category. Surface was ranked the lowest by the customer perceived level of maintenance. Signs/Marking was ranked the highest perceived level of maintenance.

The Customer Survey also provided desired category spending priorities. The general public opinion showed that Roadside, Surface, and Signs/Marking categories were perceived as the most important. The maintenance category expenses follow this public opinion with Roadside and Surface as the highest expenses per fiscal year.

A. GOALS AND REQUIREMENTS

Assess the maintenance activities of the Kentucky Transportation Cabinet.

The MRP allows the cabinet to assess the effectiveness of infrastructure maintenance activities and compare the outcomes to customer expectations.

Make informed policy and management decisions.

The results of the MRP provide guidance for investment decisions and resource allocation. In addition, the MRP findings also offer a means to assess effectiveness of prior decisions and resource allocations. MRP findings also reveal where additional resources are needed to bring performance to targeted levels.

The MRP supports the cabinet goal of delivering a consistent level of customer service across the state by providing the necessary data to identify differences in performance across districts, road types, and roadway features. The results of the MRP demonstrate how each district is performing in comparison to targeted levels in specific categories. The MRP can thereby help district management determine how district resources should be allocated to achieve a consistent level of service. The MRP can also help district and cabinet management formulate the budget request necessary to achieve targeted levels of performance.

Similarly, the MRP communicates targeted performance levels, along with the policy and budget decisions that drive them, to policy makers as well as citizens. The MRP thus aids the Commonwealth's Executive and Legislative branches in determining acceptable levels of performance for their constituents.

The MRP is designed to support "management by fact" at all levels and provides a means to identify best practices among the districts by identifying districts exceeding target levels. These practices can then be shared with districts that may be falling short of their goals.

Promote alignment with the Transportation Cabinet's Strategic Plan.

The Maintenance Rating Program is vital to two of the cabinet's four strategic goals. These goals are as follows:

Strategic Goal Number 1: "Ensure Mobility & Access" to preserve the transportation system infrastructure.

Strategic Goal Number 3: "Continually Improve Organizational Performance" of Operational and Support Processes.

The MRP is a direct assessment tool for maintenance activities related to infrastructure preservation, as defined in *Strategic Goal Number 1*. The MRP is also the principal

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performance measure for assessing maintenance process improvement, thereby facilitating *Strategic Goal Number 3*.

Provide Data for GASB-34.

MRP data can be used to satisfy the Governmental Accounting Standards Board Statement 34 (GASB-34) condition of highway assets requirement. This requirement obligates state governments to report all capital assets, including infrastructure, in a *statement of net assets* and to report depreciation expense associated with these assets. Infrastructure assets are not required to be depreciated if (1) the government manages the assets using an asset management system that has certain defined characteristics and (2) the government can document that the assets are being preserved approximately at (or above) a condition level established and disclosed by the government.

KYTC's Operations Management System (OMS) satisfies the first requirement listed above. The MRP fulfills the second requirement.

B. METHODOLOGY

Sampling and Data Collection

Data is collected during one wave each year, June through October.

For this wave, between 300 and 400 roadway segments are randomly selected in each district among the following four road types:

Interstates - Those routes designated as part of the Eisenhower National System of Interstate and Defense Highways. These include three north-south interstates (I-65, I-71, I-75); two east-west interstates (I-24 and I-64); and smaller loop routes in Louisville Metro and Northern Kentucky.

Other NHS - Non-interstate routes that are part of the National Highway System. This category includes most of the state's parkways and major US routes. Some state routes (roads designated with a "KY" prefix) are also components of this system.

Other SP/Sec - State Primary and Secondary roads include all "KY" routes which do not carry an NHS or Rural Secondary designation.

Rural Secondary – The system of roads in Kentucky that are usually considered “farm to market” roads.

Each roadway segment is 500 feet in length and includes all adjacent right-of-way. Two-person teams from each district inspect the selected roadway segments and complete the MRP inspection for each segment. The KYTC GIS department developed a mobile GIS application in 2010. This application allowed inspections to be completed with a Mobile GPS unit. The mobile application gave Central Office access to a SDE layer that was updated daily with inspection results. All districts have utilized the device and software since the 2011 data collection.

The MRP collection splits performance measures into five main categories: roadway general, pavement, shoulders, drainage, and traffic. The following are some of the inspected features: general aesthetics, visual obstructions, potholes, rutting, drop off, ditches, and guide sign faces. These measures are then used in the calculation of statewide and district MRP scores.

Quality Assurance

The Field Data Collection Manual was revised in May 2006 to reflect the recording changes for some features. The training manual contains an introduction of the Maintenance Rating Program and its purposes, as well as definitions and guidelines for recording measurements and observations on the inspection form. Additionally, the manual establishes safety procedures for both the inspection team and the public. This manual along with a training power point presentation is available on the website: <http://transportation.ky.gov/maintenance/>

Statewide training was available prior to the summer 2009 data collection to ensure new employees are properly trained and to address any additional questions regarding the program. All districts requested and received training with the exception of districts three and eight during this time. District three requested and received training prior to the summer 2010 data collection. All districts were trained for mobile device collection in 2011 and additional training was offered in 2012.

A quality assurance procedure was established to assess the accuracy of MRP data collection, and indirectly, the consistency of training. Two teams from the central office in Frankfort re-inspected approximately 10% of the segments surveyed in each district. The results of the quality assurance inspections will be compared to that of the original inspections and will be used to determine additional needs for training of the field data collection teams.

A committee of stakeholders, including Maintenance and Traffic Engineers in the MRP will periodically meet to review the data collection procedures, features and weight factors to make further improvements to align the MRP with the Strategic Goals of the cabinet.

C. ANALYSIS

The inspection results for each of the sample sets were analyzed using the Operations Management System MRP module. Most of the information reported is statistical summaries of the data. Rideability indices were provided by the Pavement Management Branch within the Division of Maintenance. Each road type score was weighted according to the proportion of centerline miles for each of the four road types to produce district and statewide road type totals and a state total score. Spending data was taken from OMS and EMARS according to fiscal year. Spending data from the previous fiscal year is paired with MRP data collected during the current fiscal year.

Each of the roadway features measured was evaluated and given an "importance weight" with respect to the other features so that the sum of all weights is 100. These importance weights were determined through a consensus of approximately 100 key KYTC managers and staff. They are based on the customer requirements identified and prioritized in the 1998 Voice of the Customer research conducted by the cabinet. These requirements include safety, protection of the infrastructure, comfort and convenience, and aesthetics. Importance weights were revised in 2011 to reflect results of the 2010 Maintenance Customer Survey performed by KTC.

The targeted confidence levels and intervals are based on the size of the samples. The target confidence interval for the smallest sample, road type by district, is set as 90% +/- 10%. District totals and road type totals have a confidence interval of 90% +/- 5%, while the statewide total target confidence interval is set as 99% +/- 3%. For a feature where the number of occurrences is less than nineteen in the sample segments, no data is reported, as the data may lack statistical validity.

If no data was present for a particular feature in a district, the scores were adjusted for missing values so that the potential value remained 100. This allows for calculation of overall district and road type scores in the absence of specific feature data.

APPENDIX I

Statewide Scores

Appendix I charts show the MRP score by road type for each feature measured. Boxes are color coded according to scores:

Green – a strength, score at 90 or higher

Yellow – within acceptable limits, score between 70 and 90

Red – failing, score below 70

In some cases, a score of "N/A" is listed. In these instances, there were not enough occurrences in order to achieve the desired confidence level. This may be due to the absence of a particular feature in the sample segments (such as guardrail, curb, etc.). It also may indicate that inspection crews were unable to measure certain items due to safety concerns (as with striping on interstates).

Statewide Scores

FEATURE DESCRIPTION	INTERSTATE	NATIONAL HIGHWAY SYSTEM	STATE PRIMARY AND SECONDARY	RURAL SECONDARY	ALL ROADS
Rideability	87.8	84.3	73.1	68.1	72.0
Appearance	96.3	92.7	88.5	86.1	87.9
Vertical Clearance	97.1	94.8	79.3	64.0	73.9
Visual Obstructions	99.2	98.8	92.1	83.7	88.9
Fencing	98.0	93.1	84.3		92.1
Guardrail Specifications	92.2	81.3	70.6	74.4	74.4
Guardrail Damage	93.0	92.2	84.4	88.1	86.9
Attenuators	95.8	92.7	79.7	85.6	84.2
Potholes	77.9	74.4	81.7	78.1	79.4
Rutting	93.9	85.4	82.8	82.0	82.9
Pavement Drop Off	99.7	96.5	86.7	82.2	85.7
Shoulder Drop Off	96.2	90.8	75.6	70.1	74.8
High Shoulder	98.0	95.6	88.1	84.7	87.4
Shoulder Potholes	91.0	85.2	78.4	84.4	82.0
Drains	91.5	81.6	85.5	82.3	83.8
Ditches	98.2	90.0	83.6	81.6	83.5
Curb and Gutter	96.2	87.8	90.4		89.5
White Stripe	93.8	90.8	92.6	89.4	91.2
Yellow Stripe	97.3	95.8	90.0	82.9	87.2
Guide Signs	91.4	89.9	87.8	84.9	86.8
Guide Sign Assemblies	98.9	88.2	92.9	84.3	90.8
Warning and Reg. Signs	91.3	94.8	85.8	87.9	87.4
Warning and Reg. Sign Assemblies	100.0	85.9	90.4	89.9	90.0
Total Score	94.1	89.5	84.3	81.2	84.0

District One Scores

FEATURE DESCRIPTION	INTERSTATE	NATIONAL HIGHWAY SYSTEM	STATE PRIMARY AND SECONDARY	RURAL SECONDARY	ALL ROADS
Rideability	86.0	82.6	71.5	71.0	72.3
Appearance	100.0	98.7	99.0	99.0	99.0
Vertical Clearance	100.0	69.2	92.0	83.3	86.5
Visual Obstructions	100.0	98.7	94.0	92.2	93.5
Fencing	94.3				76.4
Guardrail Specifications	73.9	13.0			38.8
Guardrail Damage	95.6	100.0			99.1
Attenuators					
Potholes	100.0	93.6	90.0	92.6	91.8
Rutting	73.2	62.8	80.0	74.5	76.0
Pavement Drop Off	100.0	84.6	89.0	85.3	87.2
Shoulder Drop Off	100.0	78.2	90.0	94.1	91.6
High Shoulder	100.0	94.9	98.0	99.0	98.4
Shoulder Potholes	100.0	100.0	97.5	97.6	97.7
Drains			93.3	95.8	94.7
Ditches	100.0	100.0	100.0	95.8	97.9
Curb and Gutter					79.3
White Stripe		100.0	100.0		100.0
Yellow Stripe		100.0	93.9	97.5	96.2
Guide Signs		100.0	92.9	100.0	96.9
Guide Sign Assemblies					100.0
Warning and Reg. Signs		100.0	92.9	100.0	97.0
Warning and Reg. Sign Assemblies					100.0
Total Score	93.7	88.0	90.3	90.1	90.1

District Two Scores

FEATURE DESCRIPTION	INTERSTATE	NATIONAL HIGHWAY SYSTEM	STATE PRIMARY AND SECONDARY	RURAL SECONDARY	ALL ROADS
Rideability	85.3	85.1	72.2	69.5	72.5
Appearance	100.0	87.9	83.3	85.4	84.9
Vertical Clearance	98.3	100.0	98.9	94.2	97.1
Visual Obstructions	100.0	100.0	98.9	92.2	96.3
Fencing	100.0	98.0			94.6
Guardrail Specifications	90.9	90.2			81.1
Guardrail Damage	95.4	80.4			88.2
Attenuators		94.9			90.6
Potholes	70.3	58.8	86.1	73.3	78.1
Rutting	100.0	83.5	80.0	82.5	81.7
Pavement Drop Off	100.0	97.8	96.7	95.2	96.2
Shoulder Drop Off	93.2	98.9	90.0	82.5	87.8
High Shoulder	100.0	100.0	93.3	94.2	94.4
Shoulder Potholes	74.6	89.0	77.8	90.3	83.8
Drains	60.5	63.3	92.0	85.3	86.1
Ditches	96.6	96.6	91.9	90.3	91.7
Curb and Gutter		85.3			88.6
White Stripe	93.2	97.2	100.0		99.4
Yellow Stripe	96.6	97.2	93.6	93.4	93.9
Guide Signs		92.9	100.0	57.6	81.8
Guide Sign Assemblies		100.0	100.0		100.0
Warning and Reg. Signs		87.5	79.0	85.4	82.4
Warning and Reg. Sign Assemblies			100.0		100.0
Total Score	90.6	89.5	89.3	83.8	87.4

District Three Scores

FEATURE DESCRIPTION	INTERSTATE	NATIONAL HIGHWAY SYSTEM	STATE PRIMARY AND SECONDARY	RURAL SECONDARY	ALL ROADS
Rideability	91.4	88.3	77.9	72.8	76.2
Appearance	100.0	100.0	81.0	75.0	79.4
Vertical Clearance	100.0	100.0	75.0	48.1	63.1
Visual Obstructions	100.0	100.0	75.0	60.6	69.5
Fencing	98.2	100.0			99.6
Guardrail Specifications		95.6			90.9
Guardrail Damage		95.6			97.7
Attenuators					81.1
Potholes	68.2	92.5	87.5	90.4	88.9
Rutting	98.2	95.5	87.0	90.4	89.5
Pavement Drop Off	100.0	100.0	92.0	92.3	92.8
Shoulder Drop Off	100.0	94.0	68.0	62.5	67.4
High Shoulder	98.2	95.5	74.0	70.2	73.8
Shoulder Potholes	86.4	96.3	85.0	95.2	91.0
Drains	94.4	70.0	77.3	73.9	75.5
Ditches	96.2	74.1	58.5	60.7	61.4
Curb and Gutter					
White Stripe		91.7	96.0	95.8	95.6
Yellow Stripe		100.0	91.6	93.2	92.9
Guide Signs	84.3	70.4	70.7	63.6	67.3
Guide Sign Assemblies	91.1		83.7		85.5
Warning and Reg. Signs		83.3	76.7	84.9	81.5
Warning and Reg. Sign Assemblies		69.2	88.2	100.0	93.3
Total Score	93.0	89.8	80.8	79.5	81.0

District Four Scores

FEATURE DESCRIPTION	INTERSTATE	NATIONAL HIGHWAY SYSTEM	STATE PRIMARY AND SECONDARY	RURAL SECONDARY	ALL ROADS
Rideability	86.2	86.6	76.2	71.3	74.4
Appearance	75.0	82.1	71.4	70.9	71.7
Vertical Clearance	100.0	100.0	83.7	65.4	75.7
Visual Obstructions	100.0	100.0	100.0	95.4	97.8
Fencing	96.9	91.9			95.8
Guardrail Specifications		95.4			94.2
Guardrail Damage		97.7			98.8
Attenuators		100.0			99.1
Potholes	100.0	94.0	74.5	75.0	76.0
Rutting	96.9	92.9	94.9	96.4	95.6
Pavement Drop Off	100.0	94.0	85.7	80.0	83.5
Shoulder Drop Off	81.2	92.9	64.3	52.7	60.2
High Shoulder	96.9	100.0	96.9	95.4	96.3
Shoulder Potholes	84.4	91.1	51.5	56.8	56.4
Drains		94.1	86.0	88.9	87.8
Ditches	96.8	100.0	86.9	94.5	91.4
Curb and Gutter					
White Stripe		97.7	81.8	92.1	87.6
Yellow Stripe		95.4	80.5	71.2	76.5
Guide Signs	80.0	84.6	100.0	85.7	92.0
Guide Sign Assemblies		8.3	100.0	92.3	92.2
Warning and Reg. Signs			93.6		94.6
Warning and Reg. Sign Assemblies			100.0		100.0
Total Score	91.9	91.0	85.0	80.5	83.3

District Five Scores

FEATURE DESCRIPTION	INTERSTATE	NATIONAL HIGHWAY SYSTEM	STATE PRIMARY AND SECONDARY	RURAL SECONDARY	ALL ROADS
Rideability	84.5	69.7	70.0	63.5	68.8
Appearance	100.0	96.6	100.0	99.0	99.5
Vertical Clearance	91.7	93.2	85.0	62.8	77.0
Visual Obstructions	98.3	96.6	91.0	52.0	76.1
Fencing	97.8				95.2
Guardrail Specifications	100.0		73.7		77.4
Guardrail Damage	96.8		89.5		89.1
Attenuators	100.0				88.6
Potholes	58.3	2.5	65.0	73.0	65.2
Rutting	100.0	98.3	92.0	76.5	86.8
Pavement Drop Off	100.0	100.0	93.0	85.3	90.8
Shoulder Drop Off	96.7	96.6	74.0	52.9	68.6
High Shoulder	96.7	94.9	82.0	64.7	77.0
Shoulder Potholes	87.5	70.3	82.5	68.1	76.7
Drains	100.0	95.4	87.7	79.2	85.8
Ditches	100.0	91.9	80.7	80.6	83.0
Curb and Gutter		88.6	89.5		89.2
White Stripe		90.7	95.3	90.9	93.1
Yellow Stripe		100.0	95.5	82.2	89.7
Guide Signs	90.2	63.4	91.1	100.0	93.6
Guide Sign Assemblies	100.0	80.8	73.1	52.4	67.7
Warning and Reg. Signs		100.0	95.1	84.6	90.4
Warning and Reg. Sign Assemblies	100.0	72.2	74.6	71.1	75.6
Total Score	93.3	83.2	84.1	74.0	81.0

District Six Scores

FEATURE DESCRIPTION	INTERSTATE	NATIONAL HIGHWAY SYSTEM	STATE PRIMARY AND SECONDARY	RURAL SECONDARY	ALL ROADS
Rideability	86.7	77.6	67.3	64.3	67.6
Appearance	100.0	81.7	78.5	82.6	81.3
Vertical Clearance	100.0	98.3	81.7	71.7	79.6
Visual Obstructions	100.0	96.7	94.6	90.2	93.4
Fencing	97.3	95.8			94.6
Guardrail Specifications	87.5	95.1	63.6		68.2
Guardrail Damage	93.8	90.2	90.9		91.2
Attenuators	90.0	93.3			75.5
Potholes	75.5	95.8	86.6	86.4	86.1
Rutting	86.3	76.7	63.4	77.2	70.1
Pavement Drop Off	100.0	100.0	93.6	100.0	96.4
Shoulder Drop Off	94.1	81.7	62.4	68.5	66.9
High Shoulder	100.0	98.3	91.4	94.6	93.2
Shoulder Potholes	100.0	100.0	73.1	89.1	81.2
Drains	91.9	97.9	85.7	76.1	82.9
Ditches	97.6	85.4	89.7	80.7	86.8
Curb and Gutter		97.3			99.3
White Stripe		62.5	96.1	100.0	96.7
Yellow Stripe		100.0	98.2	90.2	95.2
Guide Signs	100.0	21.0	58.3		60.6
Guide Sign Assemblies	100.0	100.0			95.1
Warning and Reg. Signs		91.7	73.7	83.9	78.4
Warning and Reg. Sign Assemblies		100.0	85.9	90.5	88.1
Total Score	93.8	87.7	80.7	83.2	82.4

District Seven Scores

FEATURE DESCRIPTION	INTERSTATE	NATIONAL HIGHWAY SYSTEM	STATE PRIMARY AND SECONDARY	RURAL SECONDARY	ALL ROADS
Rideability	91.5	83.3	71.8	65.3	71.3
Appearance	96.7	95.8	96.0	87.5	92.5
Vertical Clearance	100.0	95.8	95.0	69.2	84.8
Visual Obstructions	100.0	100.0	93.0	87.5	91.8
Fencing	100.0	90.9			88.7
Guardrail Specifications	95.4	79.2			87.2
Guardrail Damage	90.9	100.0			96.8
Attenuators					93.9
Potholes	87.5	82.4	97.5	90.4	92.6
Rutting	100.0	93.0	90.0	77.9	85.8
Pavement Drop Off	98.3	97.2	92.0	86.5	90.6
Shoulder Drop Off	98.3	95.8	88.0	72.1	82.8
High Shoulder	100.0	98.6	93.0	82.7	89.7
Shoulder Potholes	91.7	96.5	95.0	95.2	95.0
Drains		68.4	97.3	96.8	94.1
Ditches	100.0	94.4	94.2	84.0	90.4
Curb and Gutter					79.1
White Stripe		88.5	85.4	89.5	87.5
Yellow Stripe		96.2	89.4	75.4	84.0
Guide Signs		89.7	66.7		71.9
Guide Sign Assemblies		100.0	90.9		93.1
Warning and Reg. Signs		90.0	71.4	64.1	70.2
Warning and Reg. Sign Assemblies			93.6	100.0	96.8
Total Score	96.0	91.4	87.6	81.7	86.0

District Eight Scores

FEATURE DESCRIPTION	INTERSTATE	NATIONAL HIGHWAY SYSTEM	STATE PRIMARY AND SECONDARY	RURAL SECONDARY	ALL ROADS
Rideability		84.9	78.5	72.1	75.2
Appearance		98.8	99.0	94.2	95.1
Vertical Clearance		97.5	81.4	62.1	70.5
Visual Obstructions		97.5	94.8	90.3	91.5
Fencing		84.0			74.7
Guardrail Specifications		76.7	59.1		63.5
Guardrail Damage		97.7	63.6		73.4
Attenuators		93.3			80.9
Potholes		100.0	89.7	78.2	82.9
Rutting		97.5	79.4	77.7	79.5
Pavement Drop Off		97.5	85.6	80.6	83.0
Shoulder Drop Off		97.5	86.6	67.0	74.9
High Shoulder		97.5	97.9	92.2	93.5
Shoulder Potholes		90.7	79.4	90.3	86.5
Drains		100.0	90.0	82.6	85.7
Ditches		97.2	94.4	93.1	93.0
Curb and Gutter					
White Stripe		97.5	98.8	84.6	89.1
Yellow Stripe		98.8	91.5	88.2	89.4
Guide Signs		97.4	100.0	86.2	90.4
Guide Sign Assemblies		100.0	100.0		98.1
Warning and Reg. Signs		100.0	91.8	87.3	89.1
Warning and Reg. Sign Assemblies		84.6	89.5	91.3	89.3
Total Score	0.0	94.6	87.2	82.9	84.7

District Nine Scores

FEATURE DESCRIPTION	INTERSTATE	NATIONAL HIGHWAY SYSTEM	STATE PRIMARY AND SECONDARY	RURAL SECONDARY	ALL ROADS
Rideability	91.4	83.3	72.5	68.6	72.2
Appearance	100.0	81.4	83.2	72.7	78.6
Vertical Clearance	100.0	100.0	58.4	51.5	60.2
Visual Obstructions	96.2	98.6	76.4	65.7	73.9
Fencing	98.0	100.0			99.4
Guardrail Specifications	88.9	84.6	64.0		68.7
Guardrail Damage	80.6	89.7	76.0		77.2
Attenuators		88.6	89.5		90.4
Potholes	81.1	50.0	74.7	69.7	70.4
Rutting	88.7	84.3	78.6	75.8	78.1
Pavement Drop Off	100.0	98.6	70.8	55.6	66.9
Shoulder Drop Off	100.0	92.9	60.7	69.7	69.2
High Shoulder	90.6	81.4	64.0	52.5	61.0
Shoulder Potholes	90.6	50.0	83.2	82.3	80.2
Drains		87.0	84.5	74.5	79.8
Ditches	94.9	78.8	67.9	65.3	68.6
Curb and Gutter					80.0
White Stripe		88.6	96.7	83.7	89.5
Yellow Stripe		88.6	82.8	70.2	77.1
Guide Signs		92.2	86.4	100.0	93.8
Guide Sign Assemblies		92.0	86.7		86.6
Warning and Reg. Signs		100.0	94.2	79.5	87.5
Warning and Reg. Sign Assemblies			84.2	88.2	86.4
Total Score	92.8	85.6	78.0	72.2	76.5

District Ten Scores

FEATURE DESCRIPTION	NATIONAL HIGHWAY SYSTEM	STATE PRIMARY AND SECONDARY	RURAL SECONDARY	ALL ROADS
Rideability	85.8	72.0	63.2	69.2
Appearance	94.5	97.2	93.6	95.4
Vertical Clearance	89.9	60.8	39.1	53.4
Visual Obstructions	93.6	85.0	81.8	84.3
Fencing	96.0			89.0
Guardrail Specifications	93.6	82.1		82.3
Guardrail Damage	90.3	85.7		86.8
Attenuators	81.5	79.0		79.2
Potholes	79.4	88.3	75.0	81.6
Rutting	93.6	90.6	90.0	90.6
Pavement Drop Off	98.2	72.0	62.7	70.0
Shoulder Drop Off	79.8	82.2	77.3	79.8
High Shoulder	92.7	88.8	87.3	88.4
Shoulder Potholes	81.6	76.6	75.0	76.3
Drains	84.8	62.5	65.7	65.8
Ditches	75.6	68.4	65.7	67.8
Curb and Gutter				
White Stripe	91.8	92.8	84.8	89.1
Yellow Stripe	91.8	81.0	56.2	70.8
Guide Signs	91.8	96.6	87.5	92.1
Guide Sign Assemblies	87.0	93.3		90.6
Warning and Reg. Signs	90.4	75.8	91.7	84.1
Warning and Reg. Sign Assemblies	84.6	74.1	73.0	74.4
Total Score	88.5	80.7	74.3	78.7

District Eleven Scores

FEATURE DESCRIPTION	INTERSTATE	NATIONAL HIGHWAY SYSTEM	STATE PRIMARY AND SECONDARY	RURAL SECONDARY	ALL ROADS
Rideability	91.1	86.0	72.4	62.7	69.5
Appearance	75.0	91.6	89.6	85.6	87.6
Vertical Clearance	86.7	98.6	63.5	56.7	63.8
Visual Obstructions	100.0	100.0	94.8	93.3	94.6
Fencing	100.0	92.6			94.8
Guardrail Specifications	100.0	78.7	63.9		69.0
Guardrail Damage	97.8	89.4	77.8		82.0
Attenuators		100.0	72.4		78.6
Potholes	91.7	71.8	68.8	61.5	66.3
Rutting	98.3	80.3	74.0	76.0	76.0
Pavement Drop Off	100.0	95.8	91.7	90.4	91.6
Shoulder Drop Off	96.7	87.3	69.8	59.6	67.2
High Shoulder	100.0	100.0	84.4	80.8	84.3
Shoulder Potholes	100.0	78.9	66.2	73.6	71.3
Drains		84.0	87.3	80.0	83.7
Ditches	96.5	100.0	89.9	79.2	86.0
Curb and Gutter					
White Stripe	94.1	92.9	85.2		84.8
Yellow Stripe	98.0	100.0	94.3	89.7	92.7
Guide Signs		100.0	100.0	100.0	100.0
Guide Sign Assemblies			100.0		99.6
Warning and Reg. Signs		100.0	96.6	100.0	98.5
Warning and Reg. Sign Assemblies			100.0		100.0
Total Score	95.6	91.0	83.1	79.0	82.4

District Twelve Scores

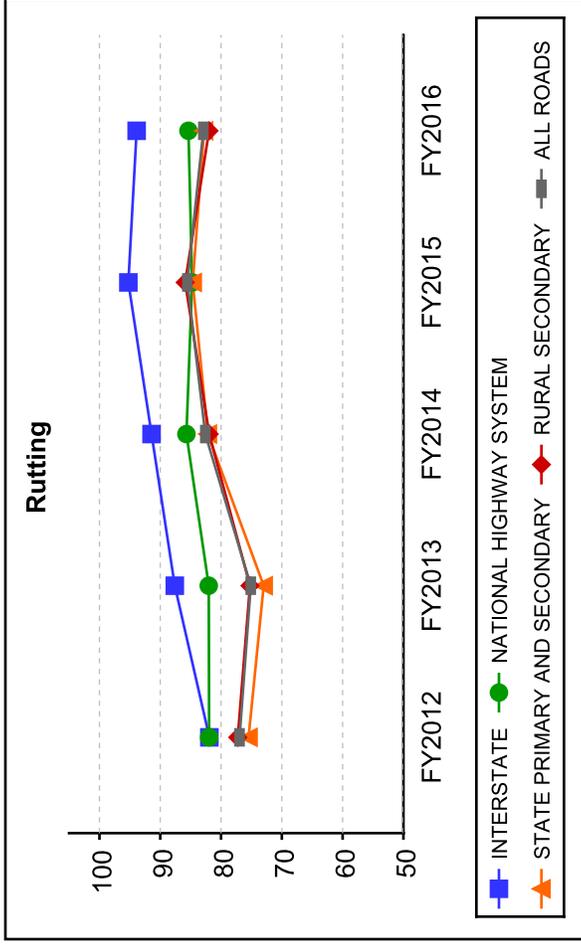
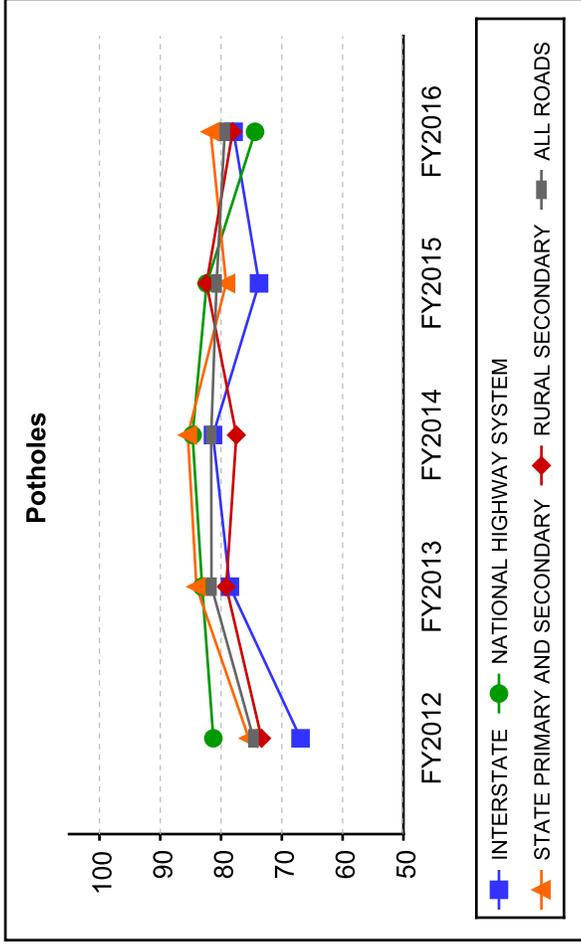
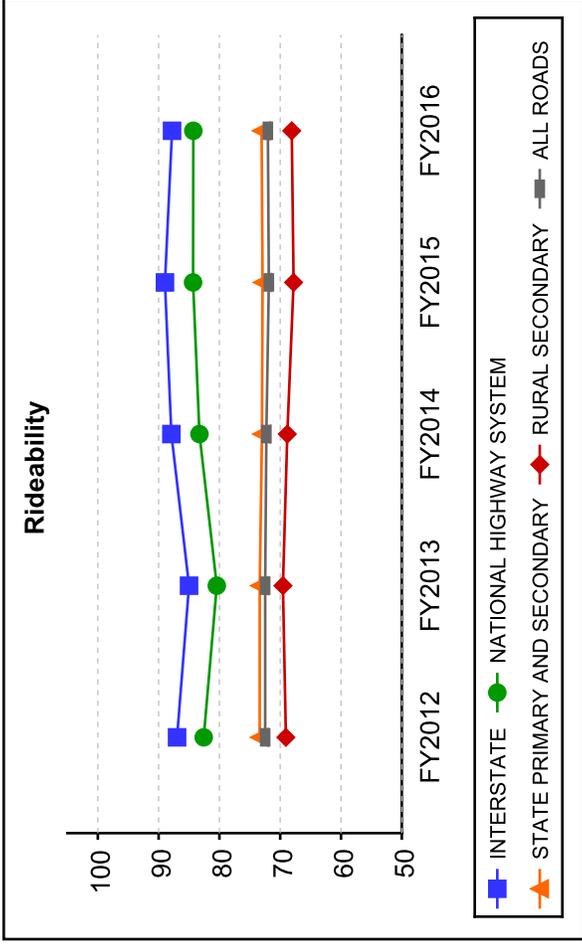
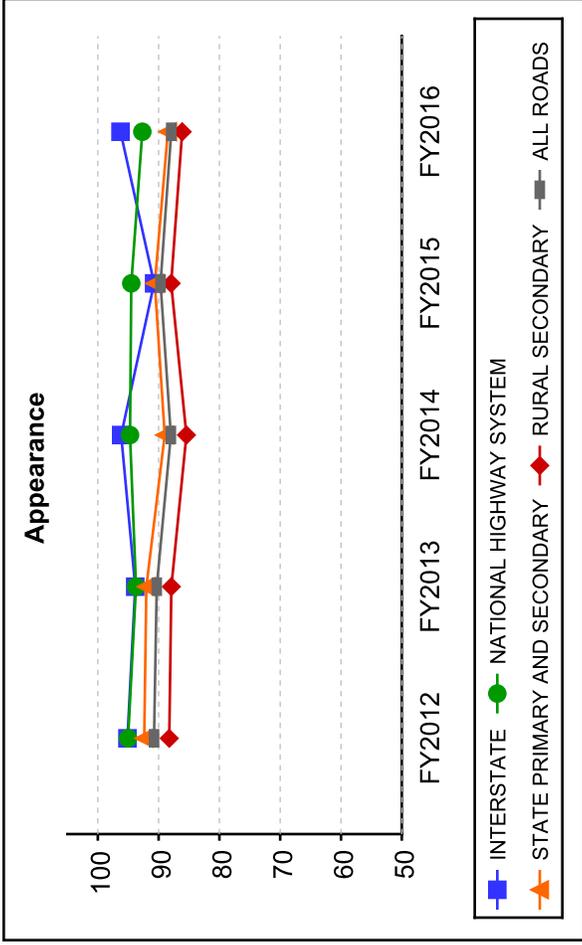
FEATURE DESCRIPTION	NATIONAL HIGHWAY SYSTEM	STATE PRIMARY AND SECONDARY	RURAL SECONDARY	ALL ROADS
Rideability	85.3	76.3	60.1	71.5
Appearance	95.4	98.3	94.6	96.5
Vertical Clearance	93.6	50.8	38.7	52.2
Visual Obstructions	100.0	97.5	88.3	94.4
Fencing				
Guardrail Specifications	96.7	75.5	75.0	78.2
Guardrail Damage	90.0	88.7	87.5	88.4
Attenuators	89.5	79.0	81.2	81.2
Potholes	58.7	66.1	59.5	62.6
Rutting	72.5	84.8	83.8	82.7
Pavement Drop Off	97.2	65.2	61.3	68.2
Shoulder Drop Off	83.5	63.6	74.8	70.5
High Shoulder	92.7	82.2	84.7	84.6
Shoulder Potholes	77.1	80.9	95.5	85.8
Drains	83.2	74.0	74.5	75.4
Ditches	78.4	67.6	65.4	68.3
Curb and Gutter	88.9			91.6
White Stripe	73.4	81.7	85.4	82.0
Yellow Stripe	89.0	86.2	68.8	80.1
Guide Signs	97.9	87.5		90.6
Guide Sign Assemblies	92.0	89.7		91.0
Warning and Reg. Signs	100.0	96.3	100.0	98.2
Warning and Reg. Sign Assemblies	89.5	88.0		87.3
Total Score	86.9	80.2	76.1	79.8

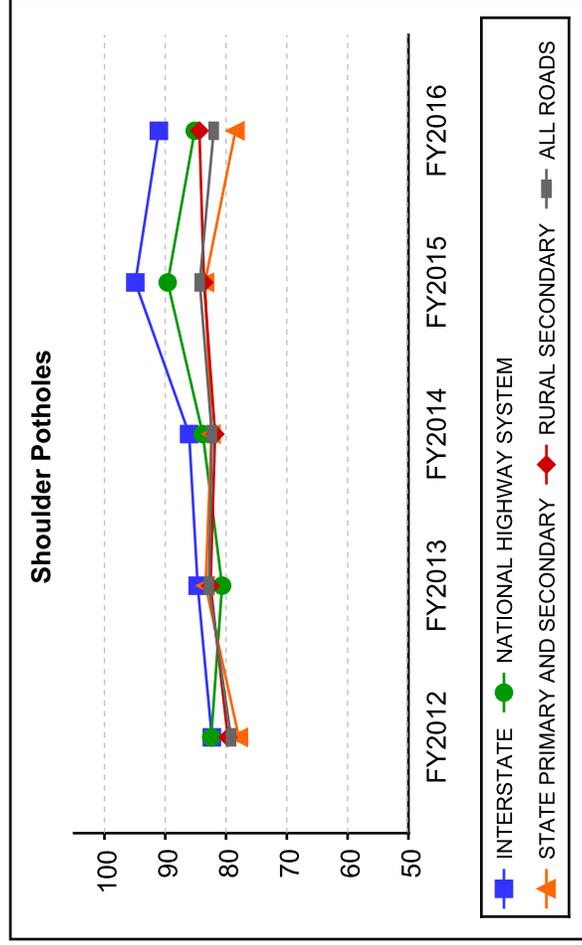
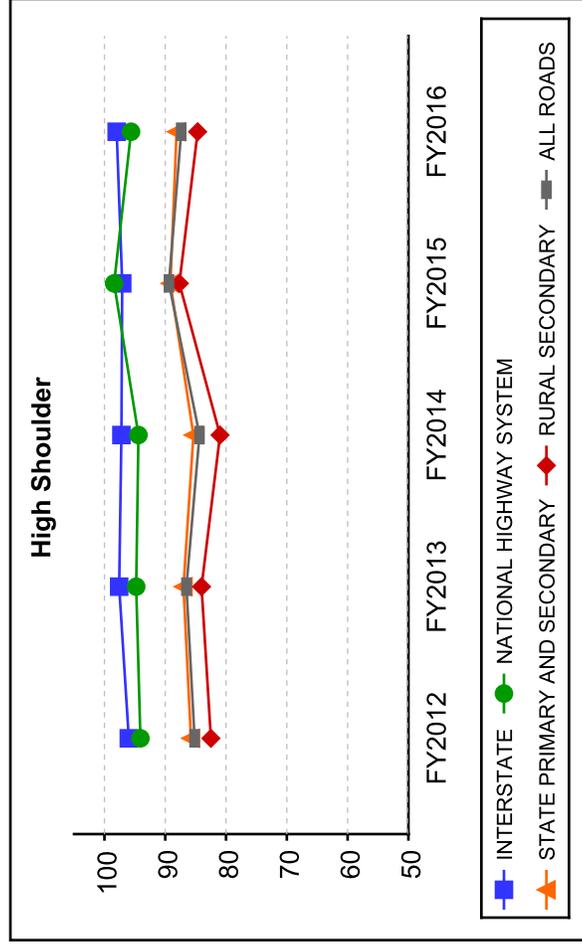
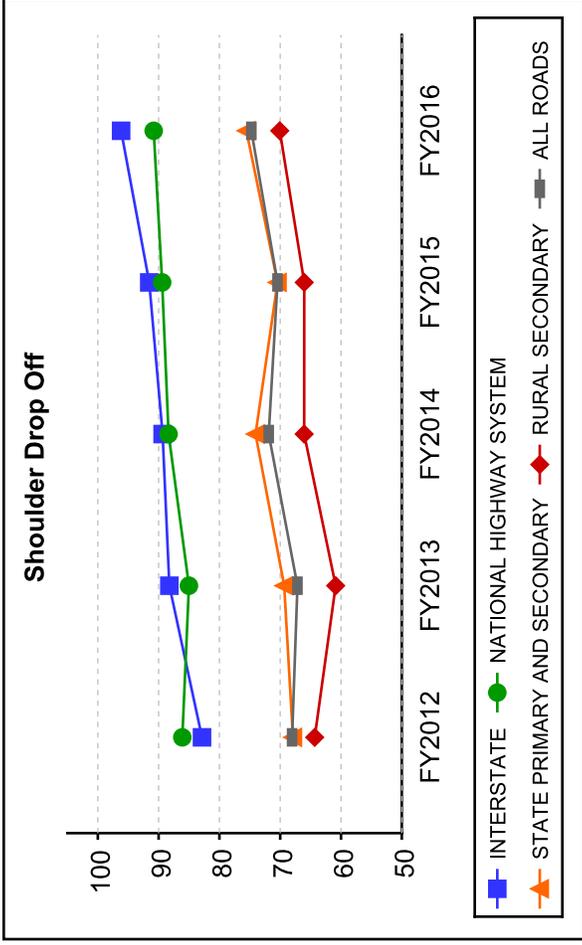
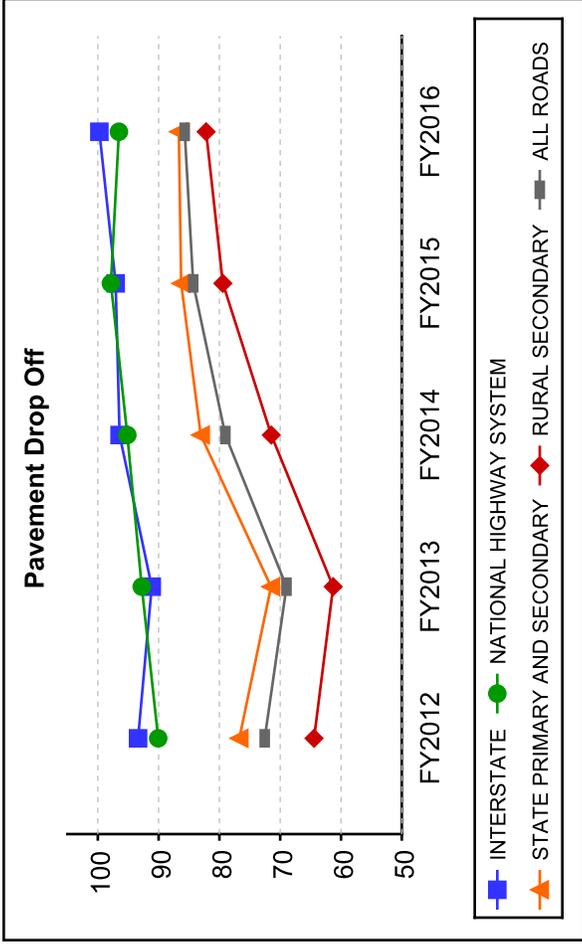
APPENDIX II

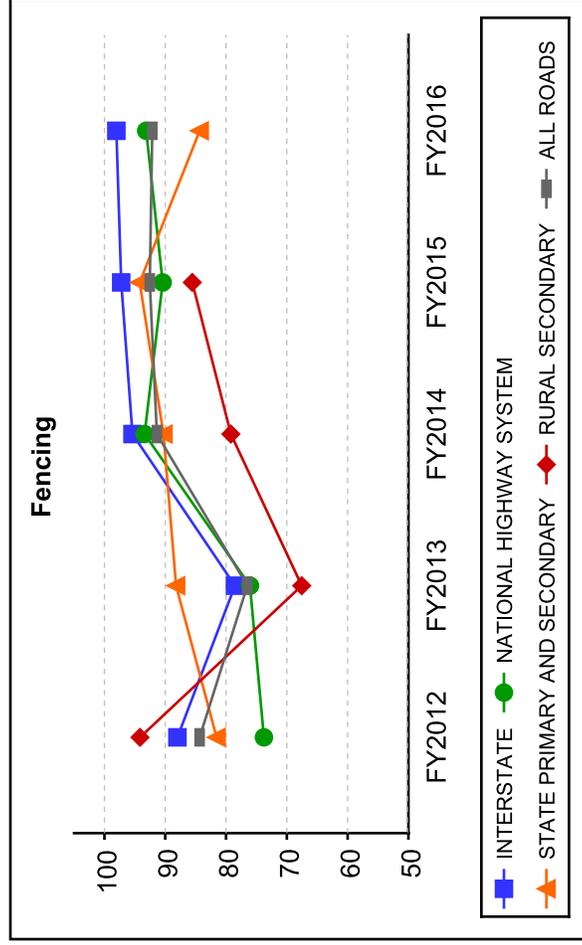
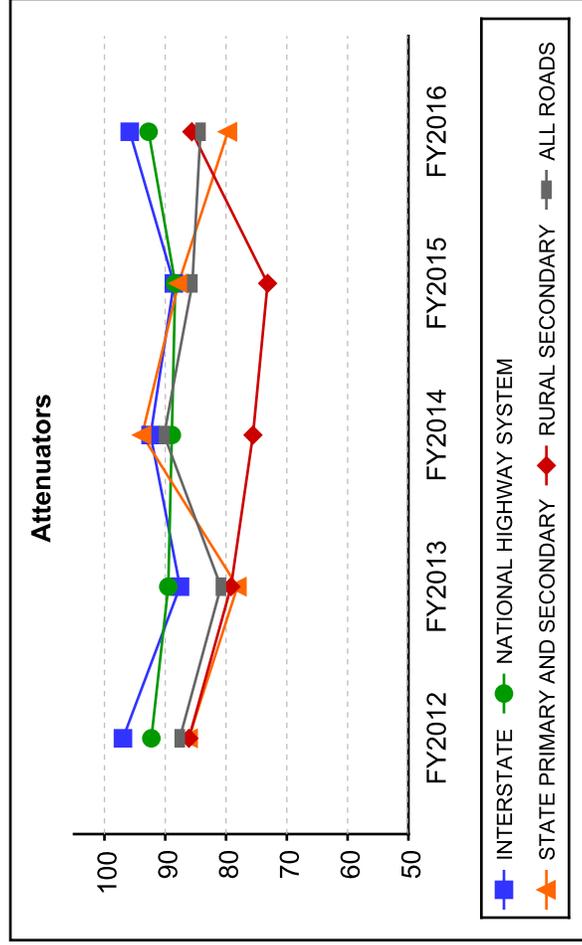
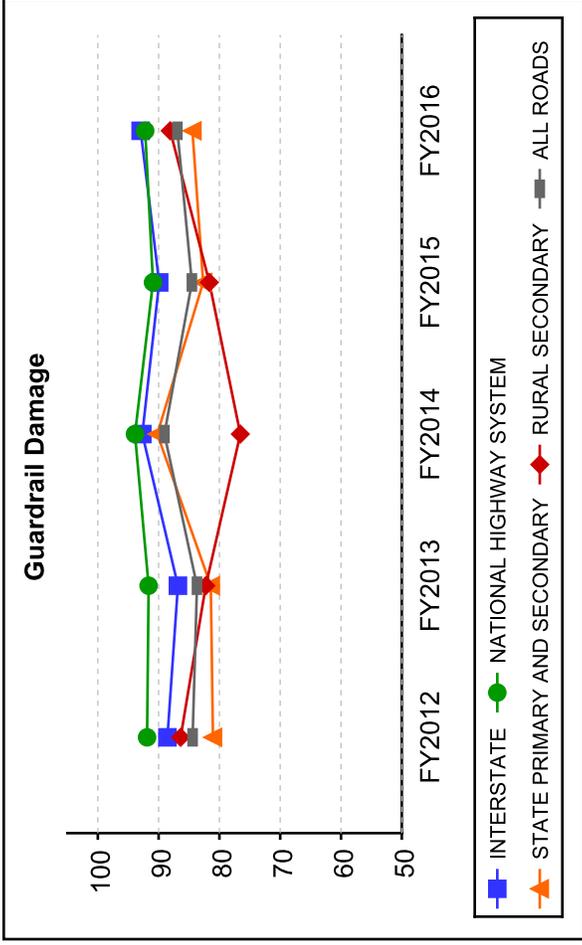
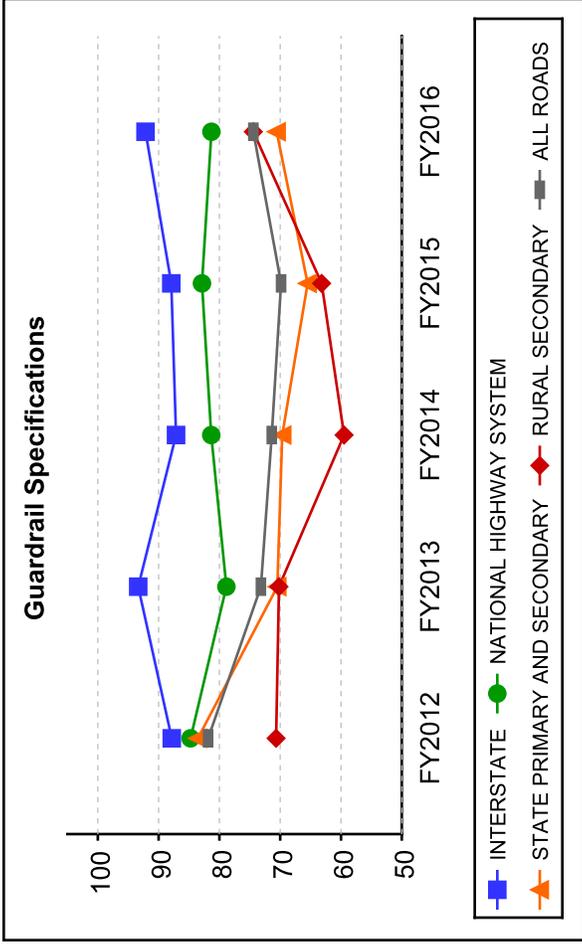
Statewide Scores by Element Type

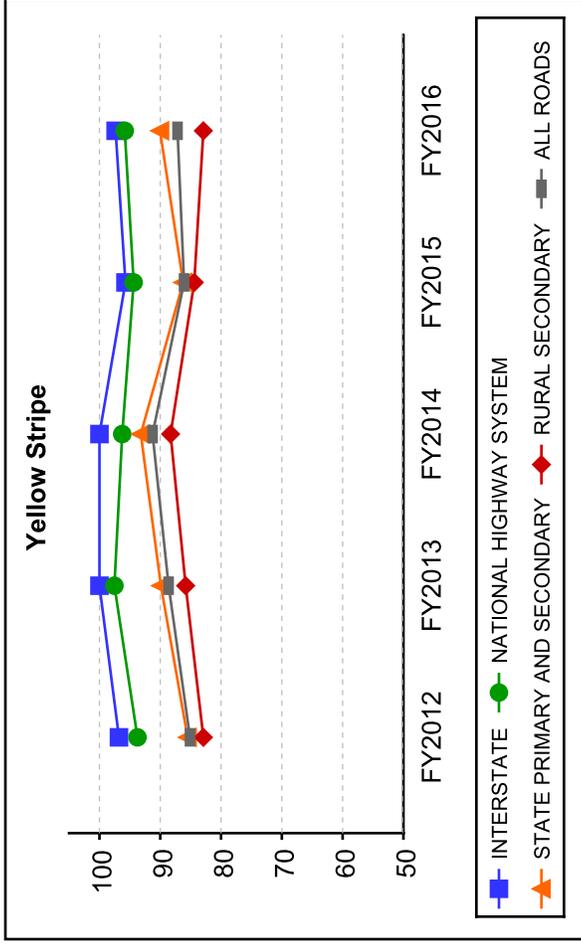
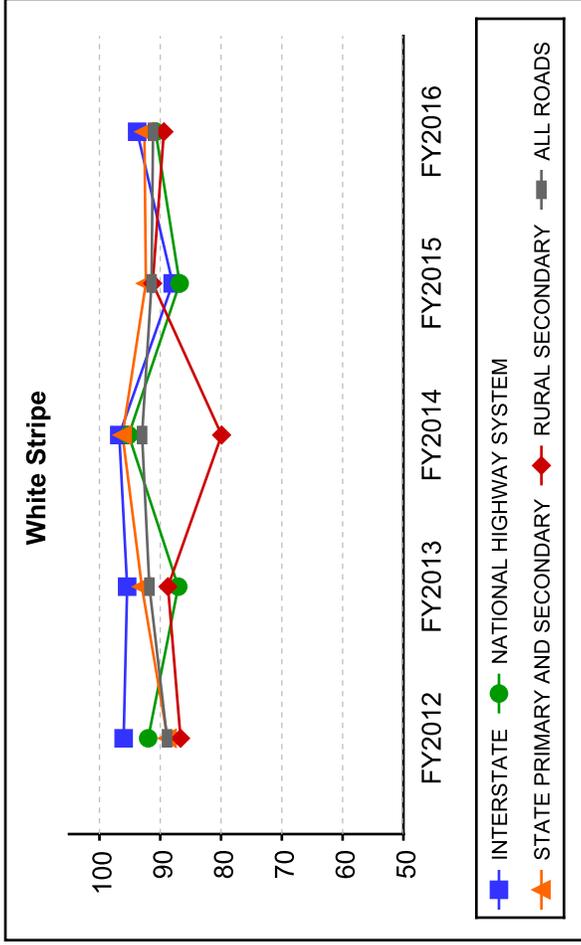
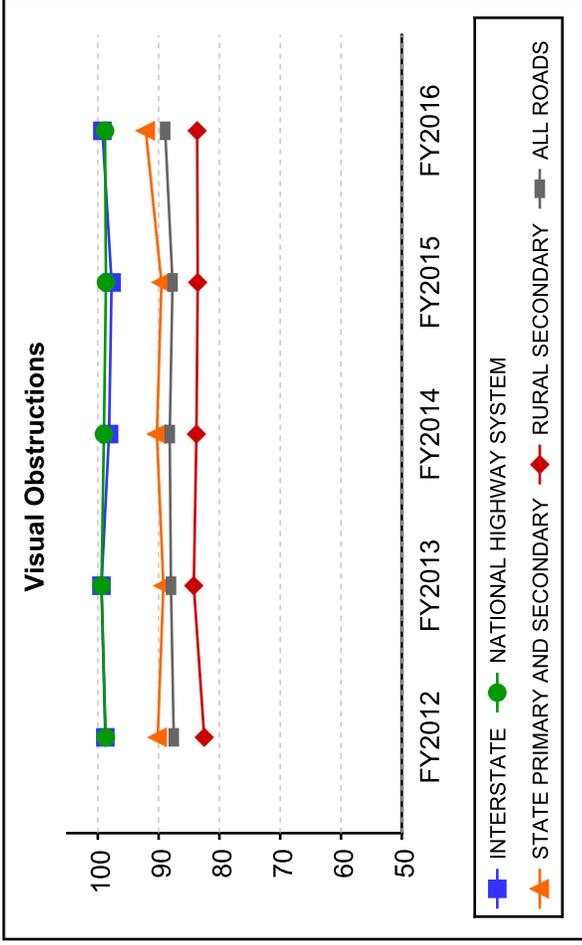
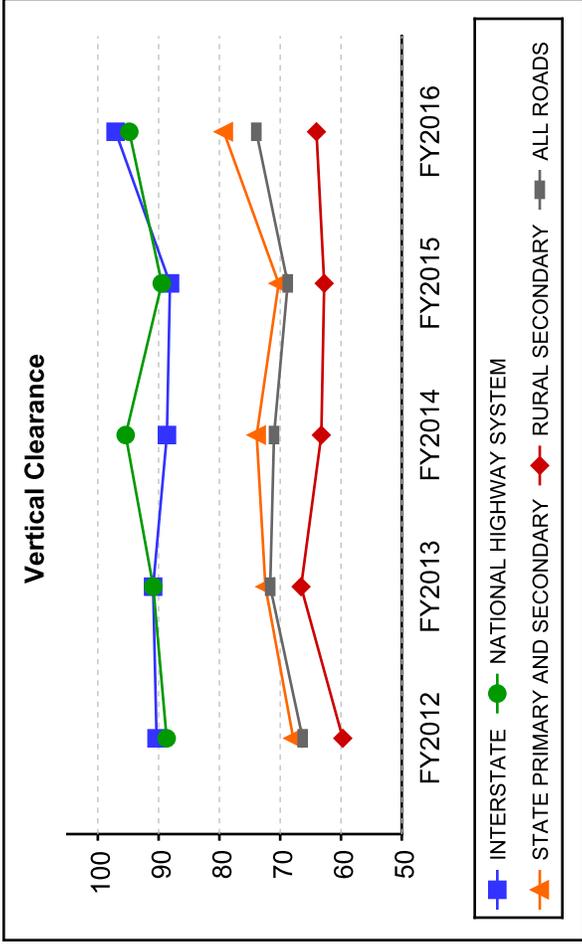
Appendix II is a graphical representation of historical scores on a statewide basis. Scores for the current and previous four years are represented in the graphs for each of the four road types. The gray shaded area represents the weighted average of all roads for the given feature. This weighting is based on the number of miles present for each road type. For this reason, the shaded area may not appear to be a true average of the individual lines. In general, the weighted average will tend to gravitate toward the RS and Other SP/SS scores as these have the majority of centerline miles.

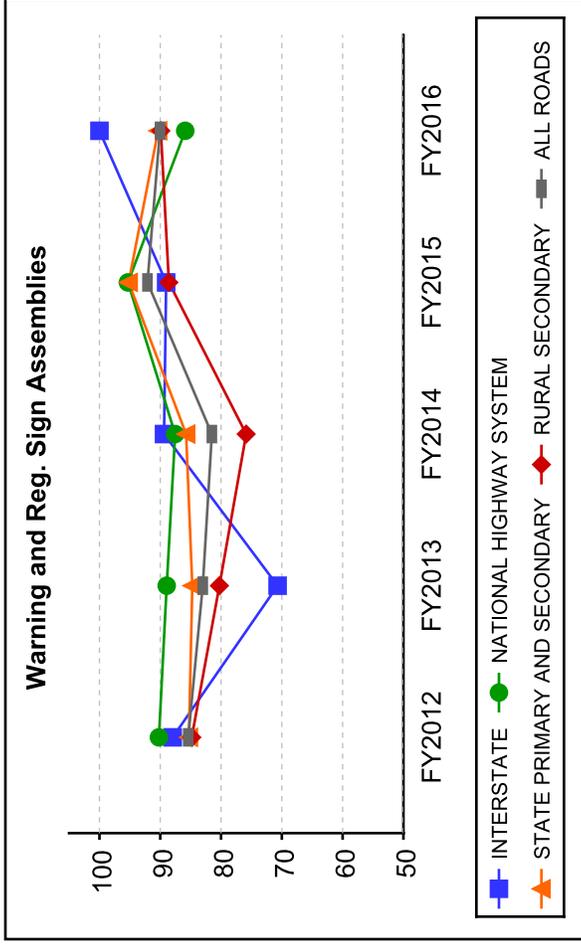
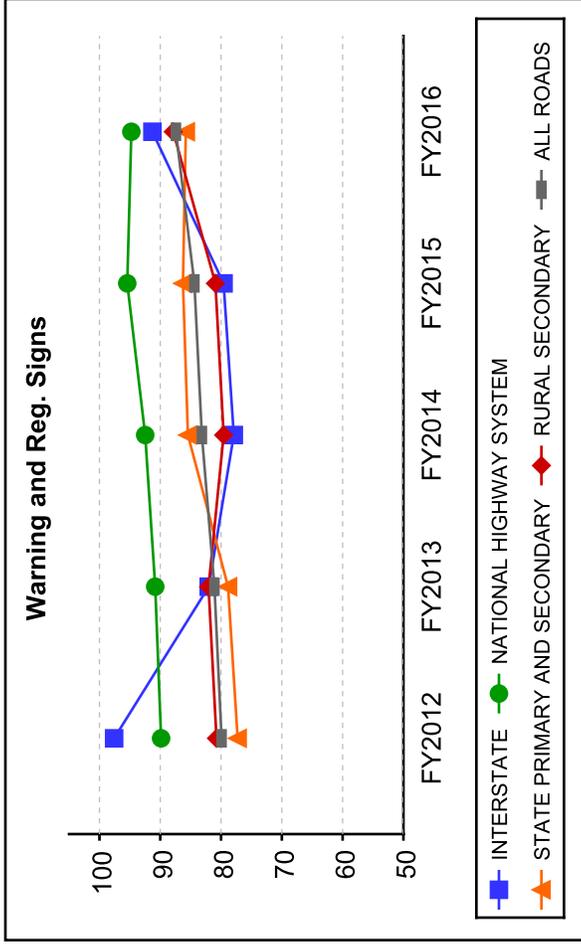
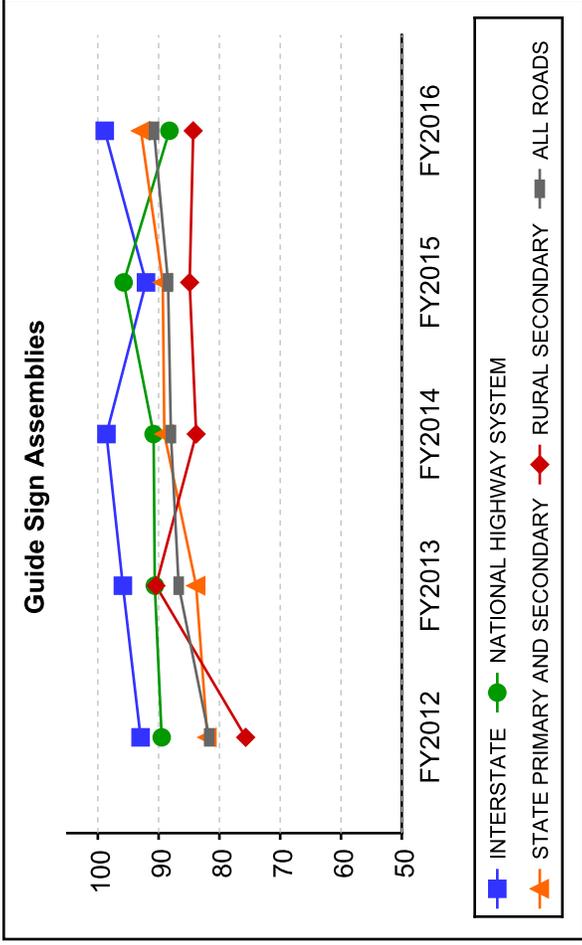
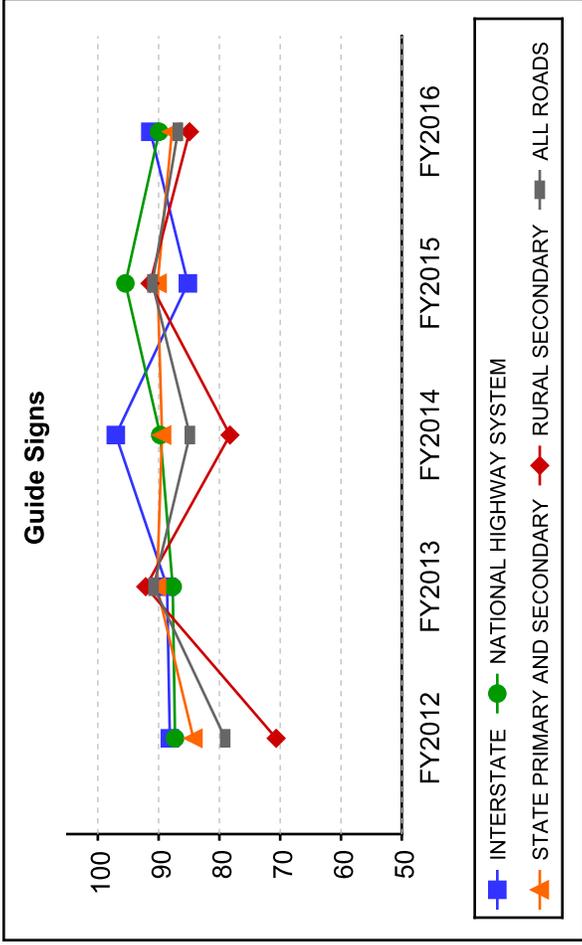
In some instances, there may be insufficient data available to analyze a specific road type. In these cases, individual lines may be broken or may not appear at all. Where possible, the overall average score is still displayed.

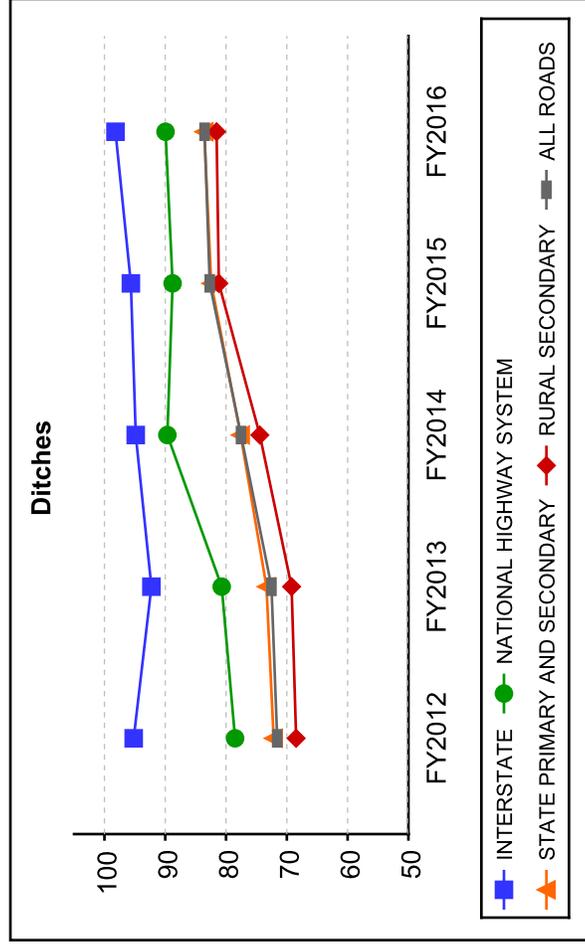
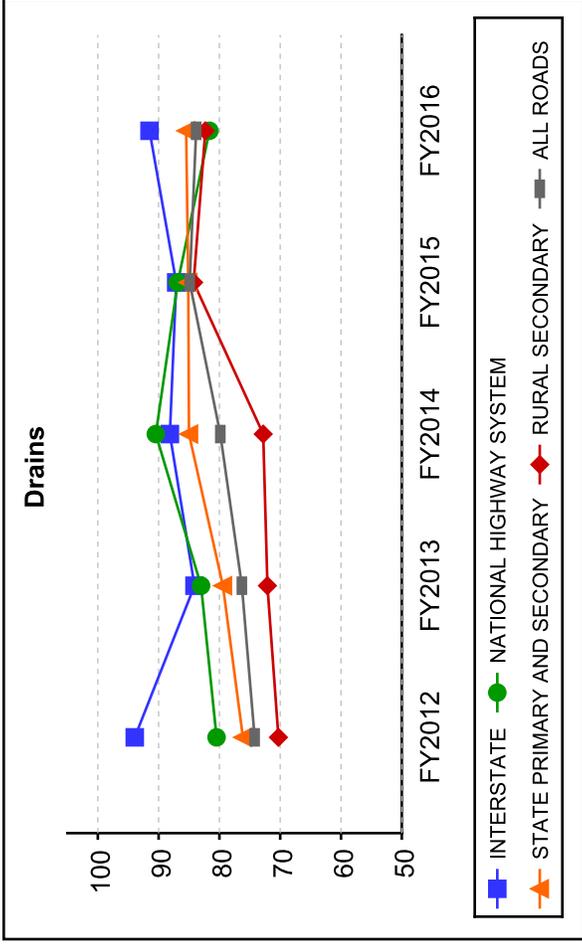
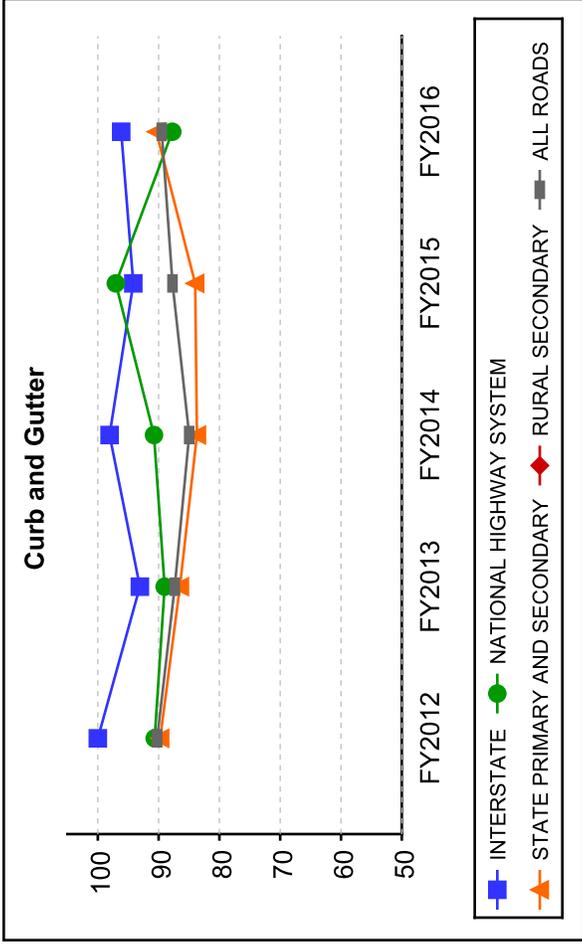










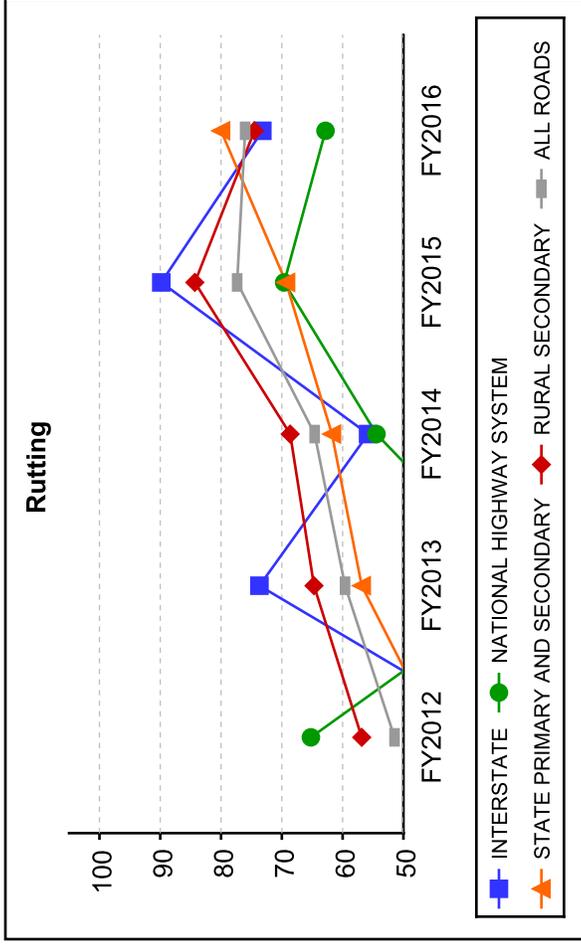
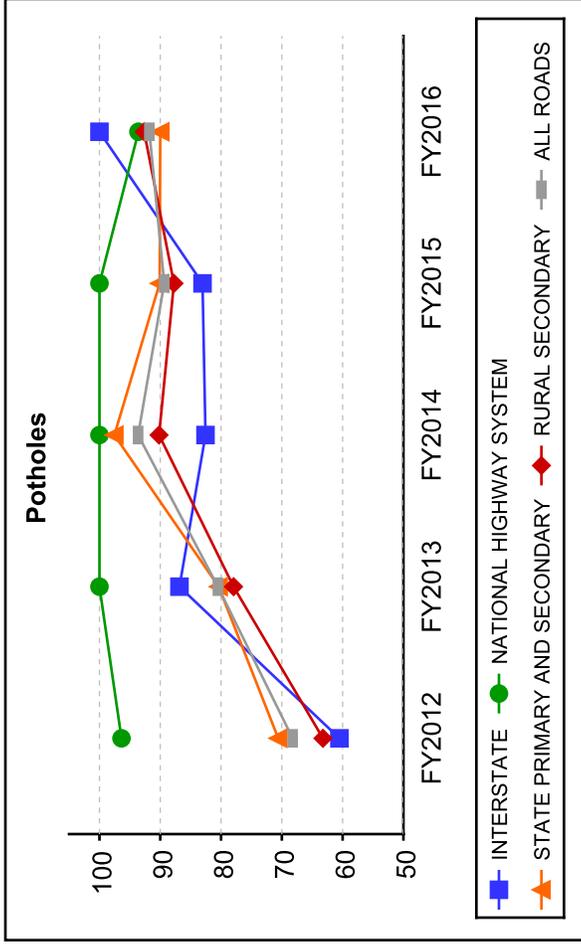
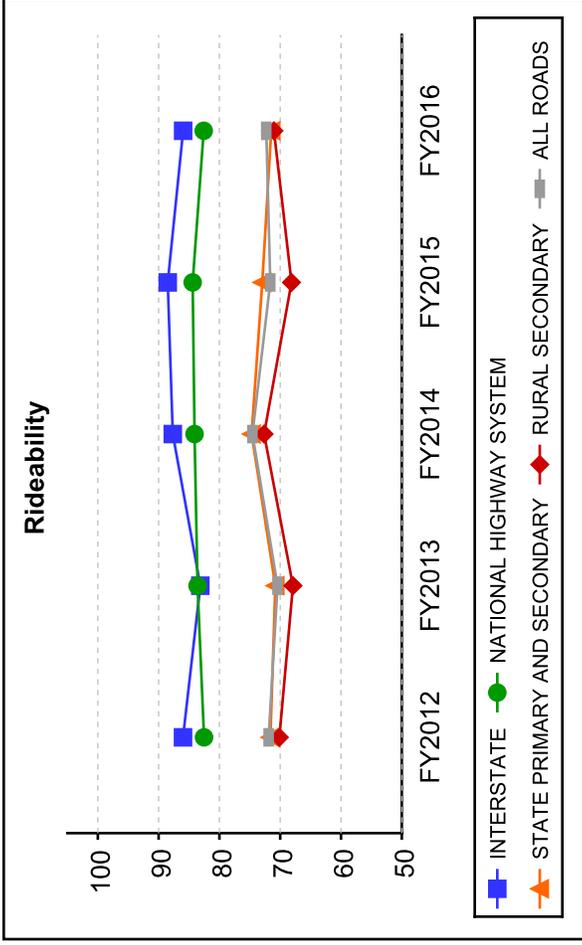
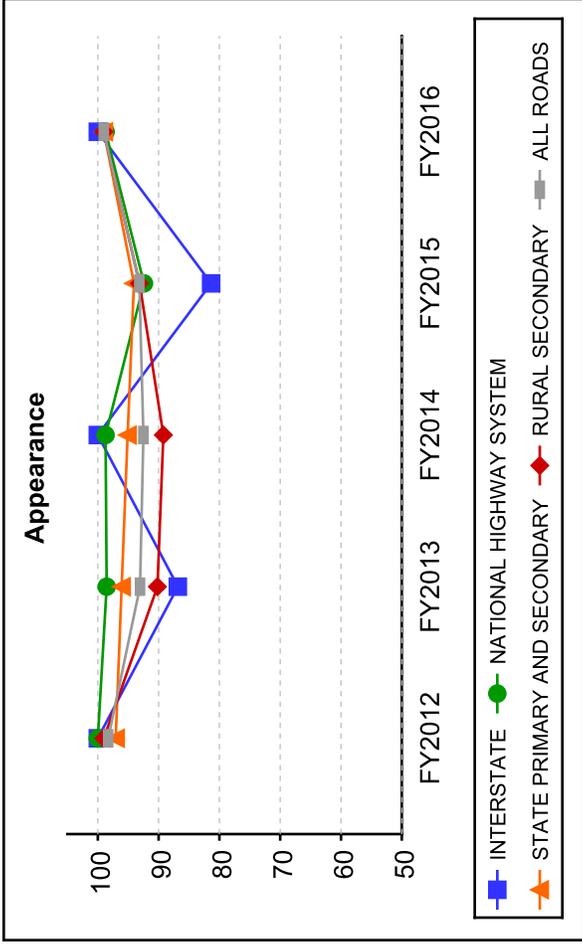


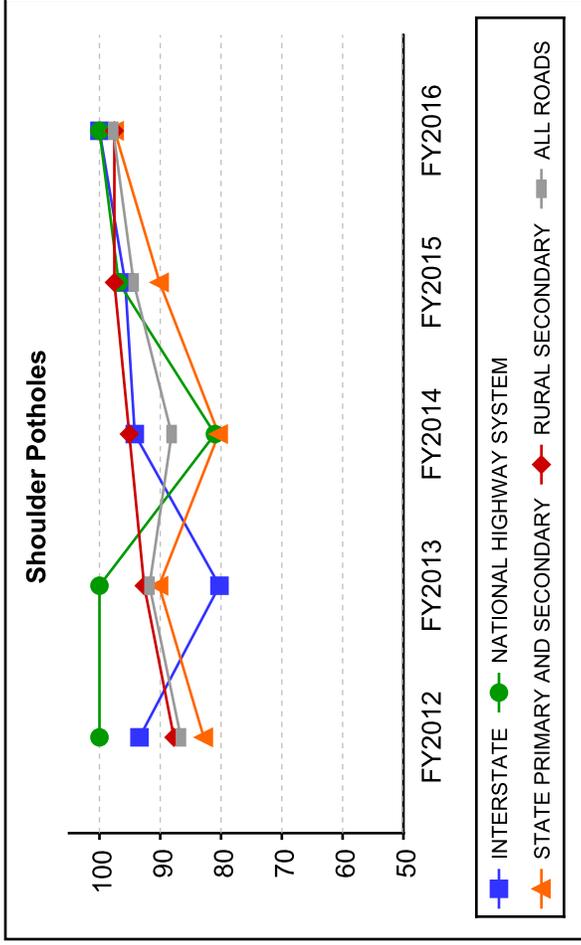
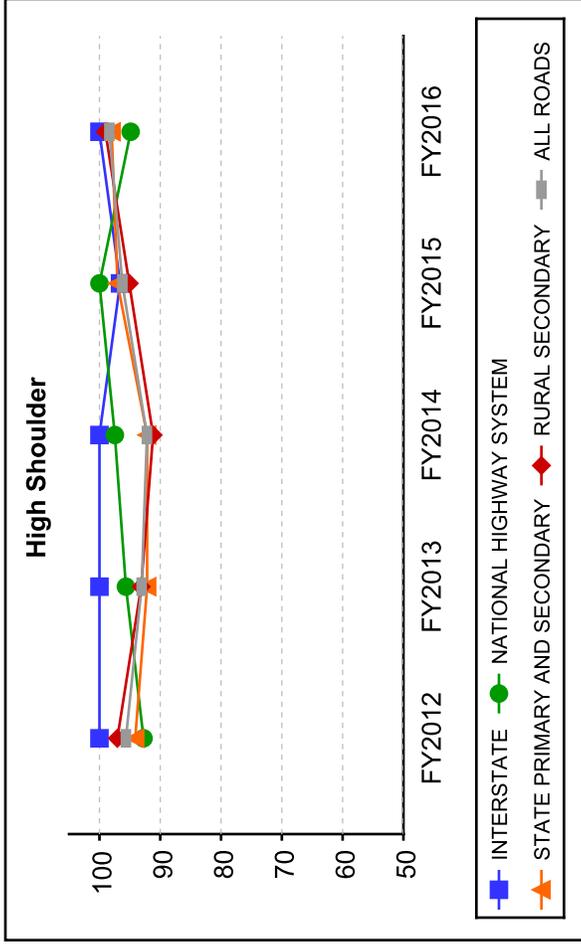
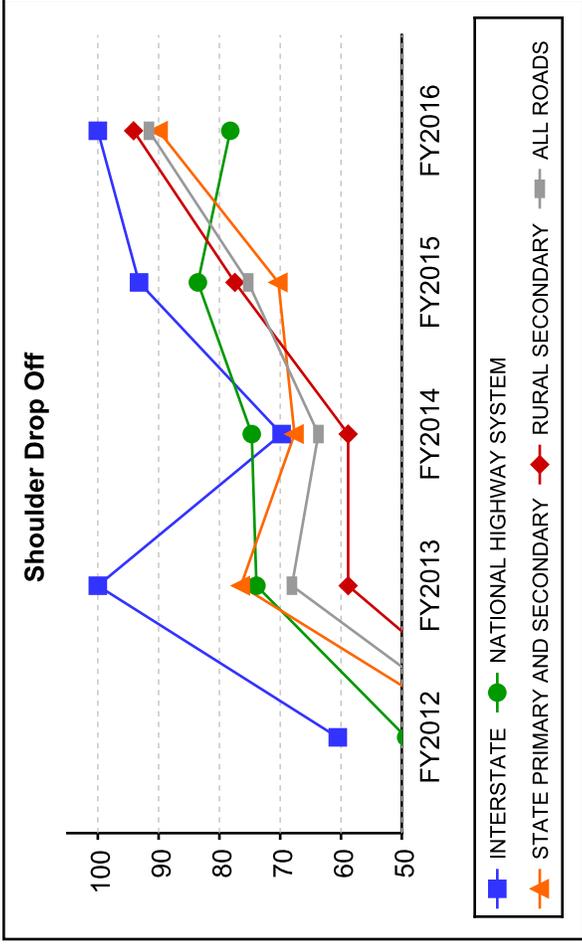
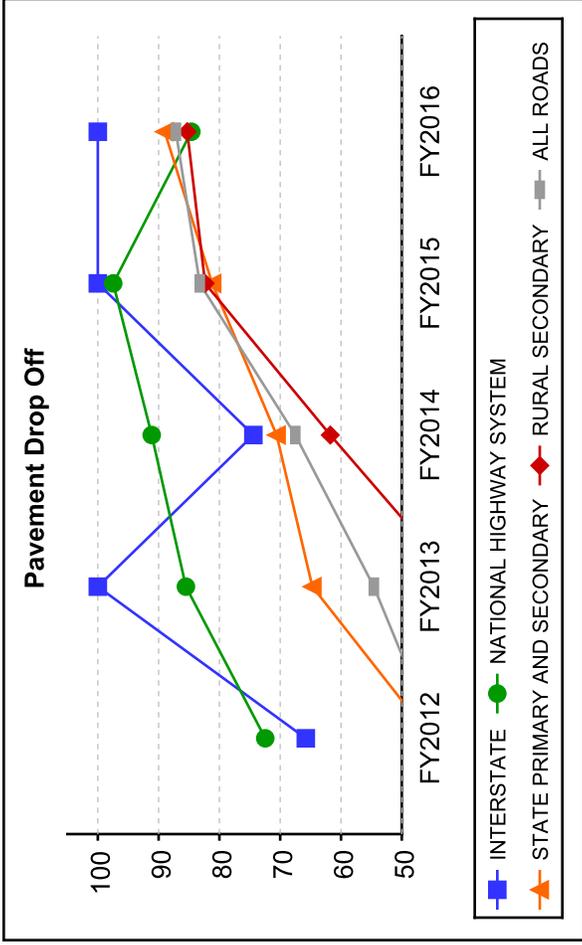
APPENDIX III

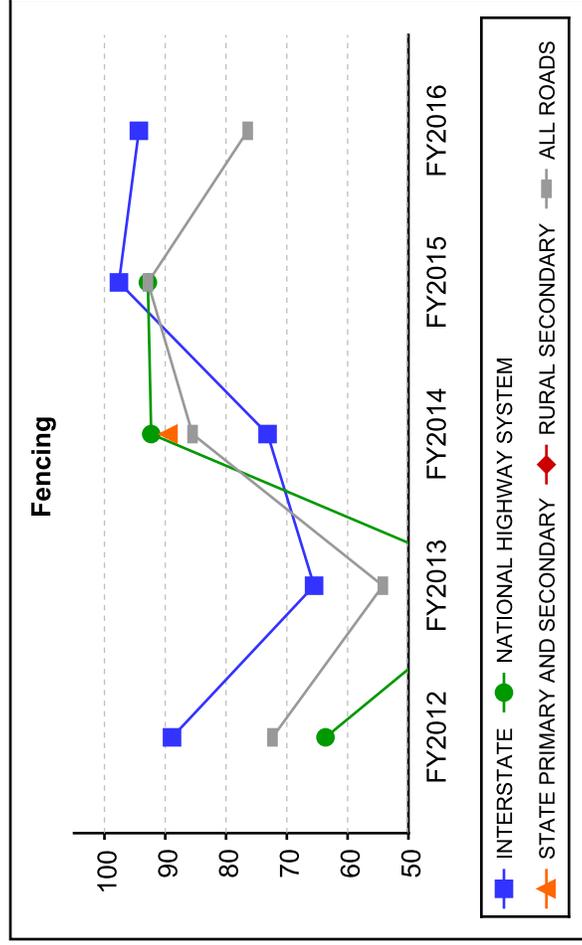
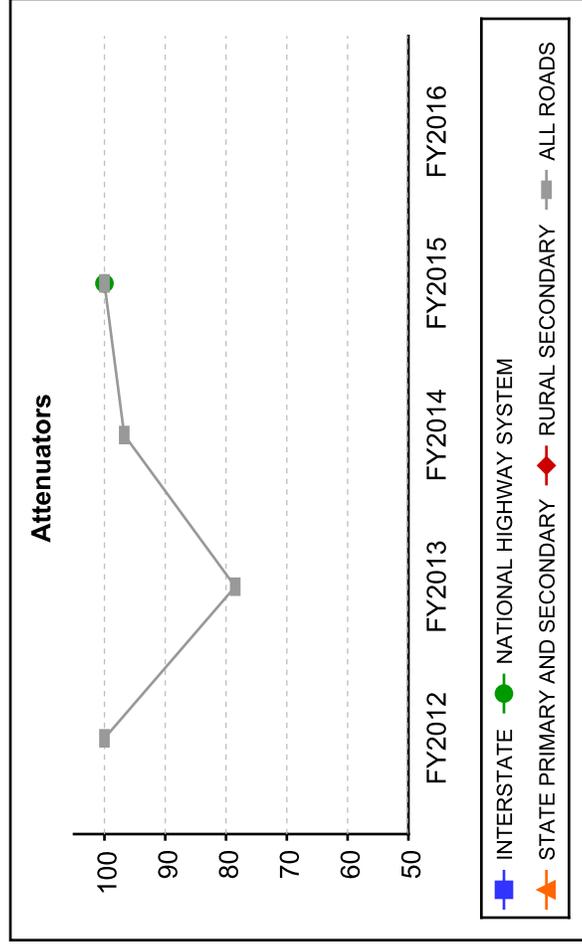
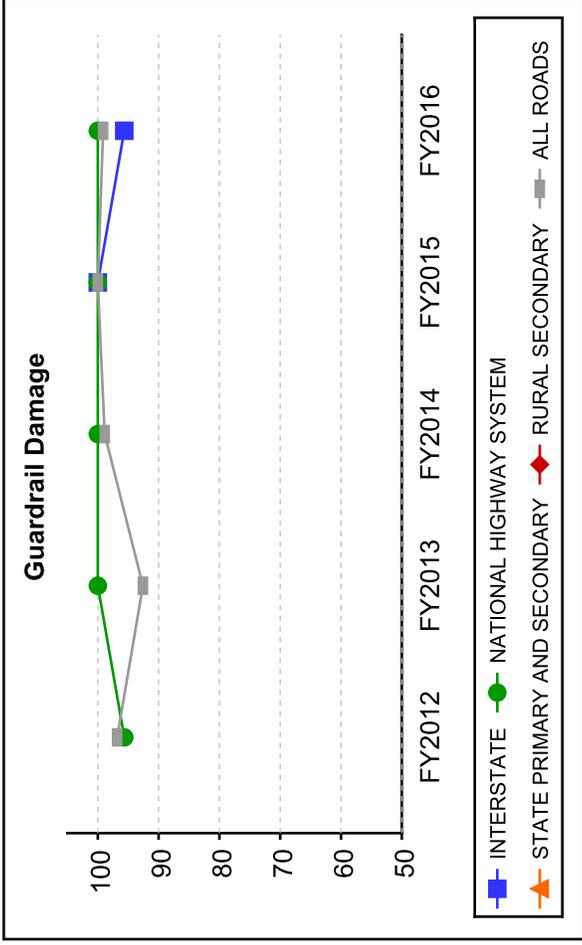
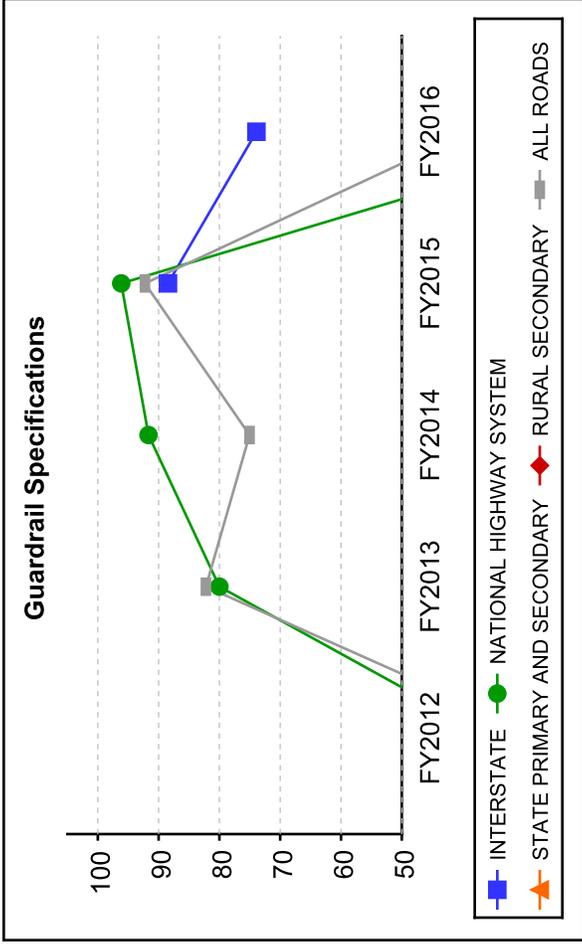
District Scores by Element Type

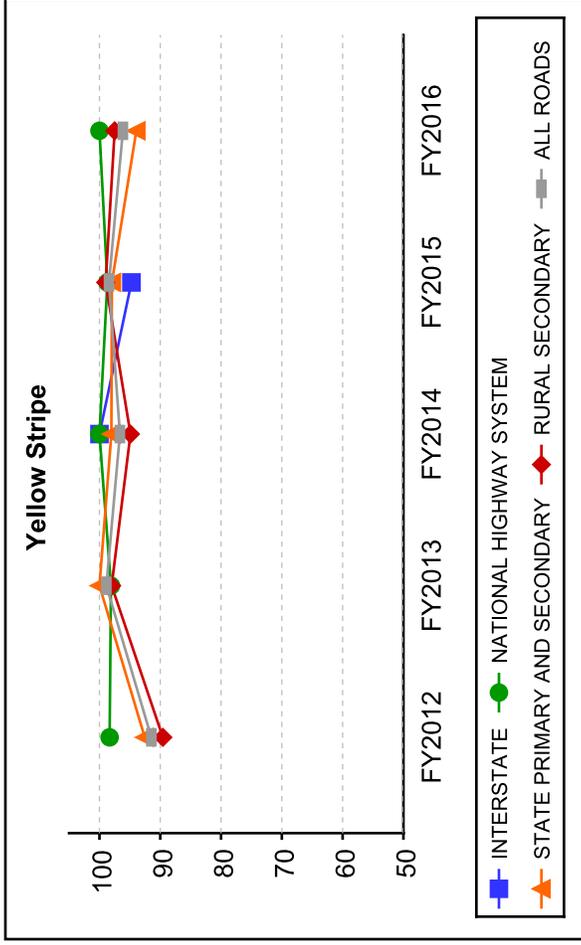
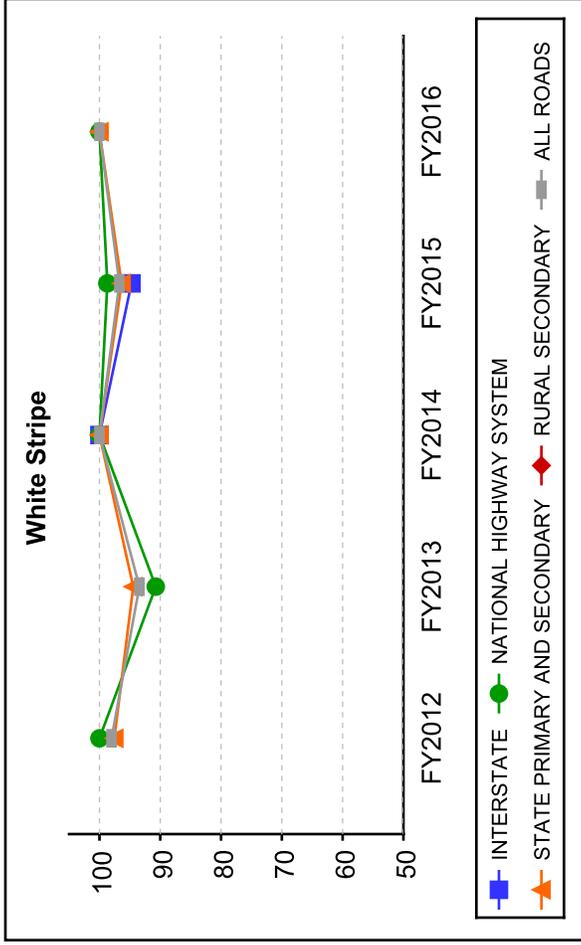
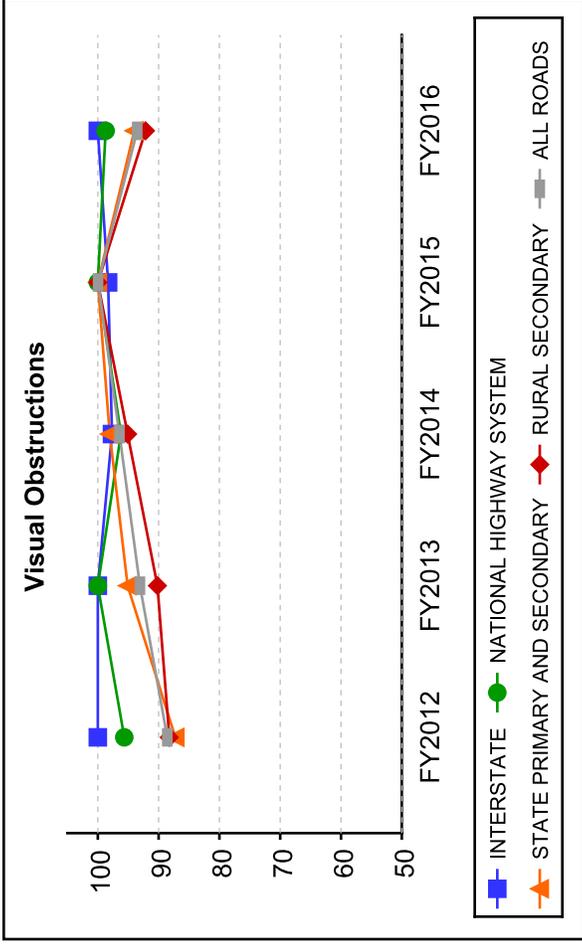
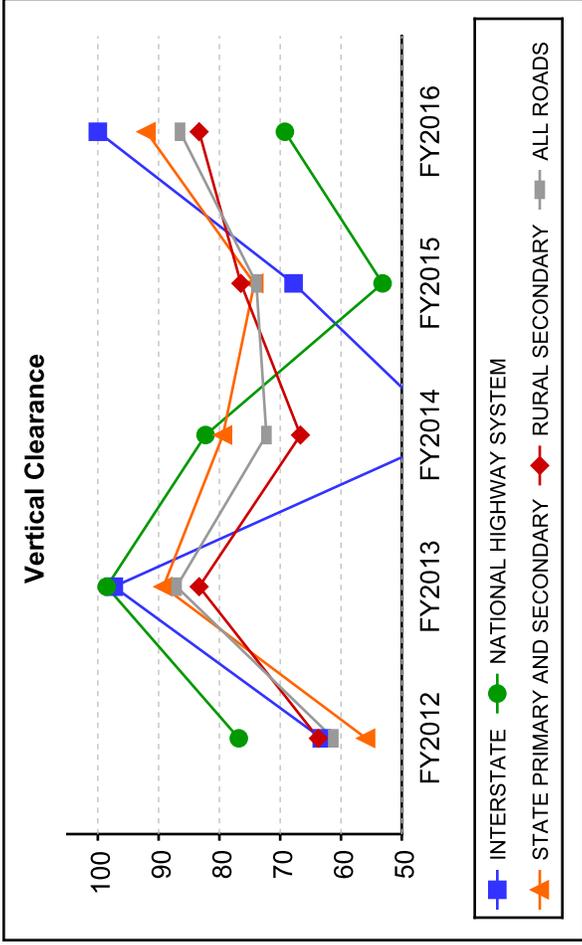
Similar to Appendix II, the District Scores by Element Type have scores for the current and previous four years represented in the graphs for each of the four road types. The gray shaded area represents the weighted average of all roads for the given feature.

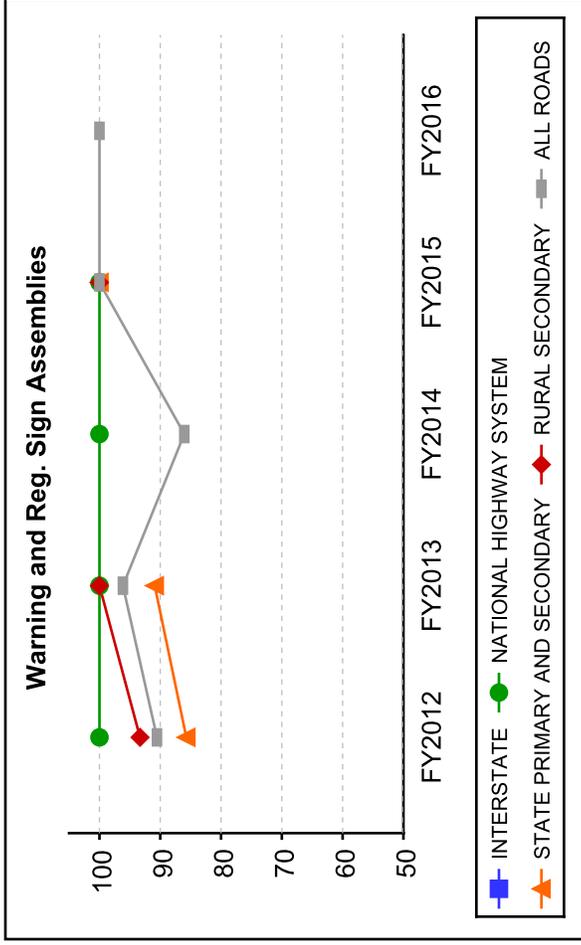
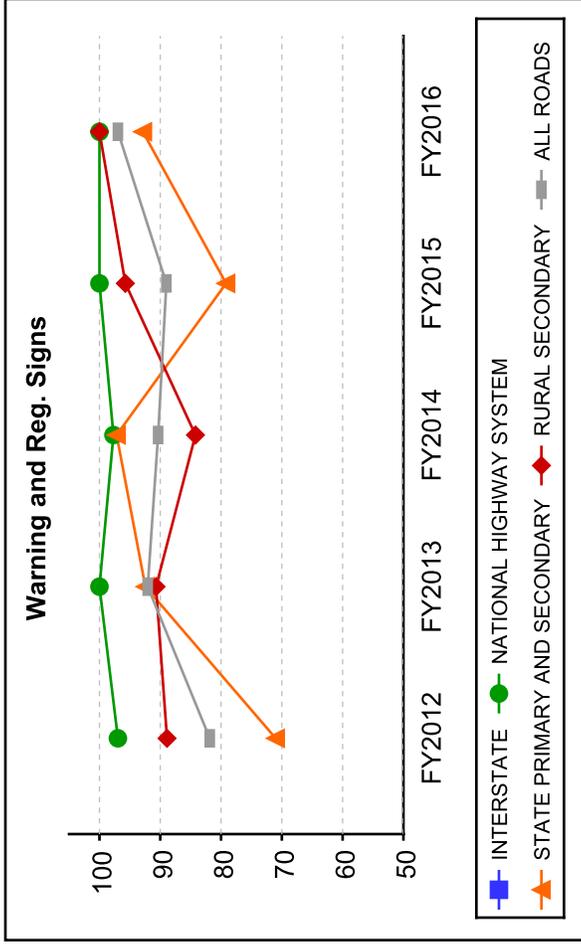
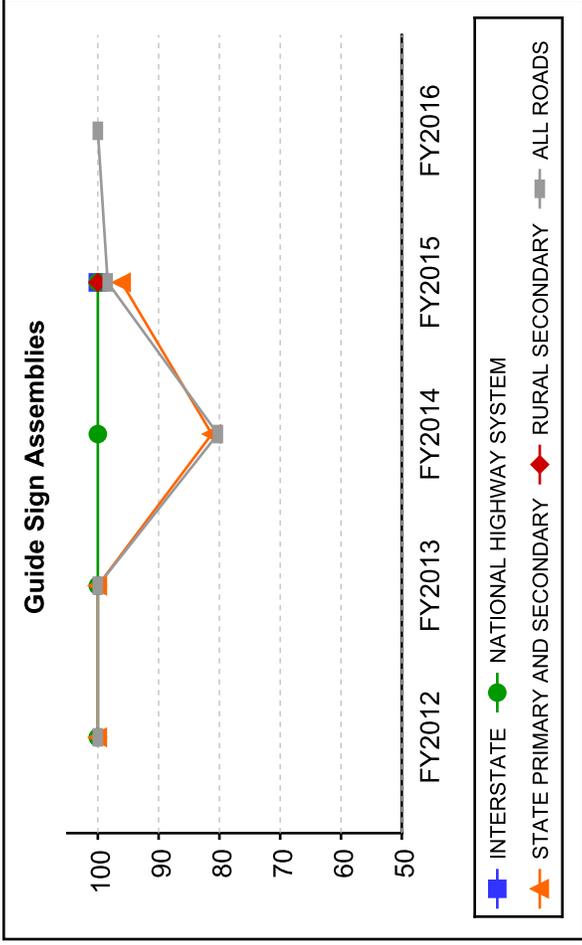
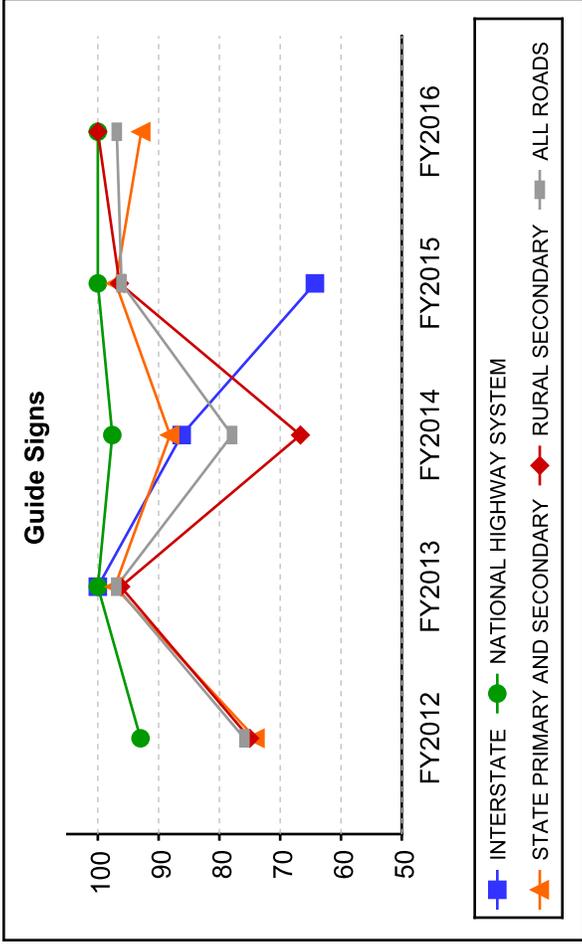
Due to the much smaller sample size in district evaluations, there are many more instances where there was insufficient data for analysis. These graphs are still shown, but will be marked accordingly. In some cases, the line representing a specific road type may be missing or broken due to insufficient data for a specific year or road type, but the district-wide average for all road types is still shown where possible.

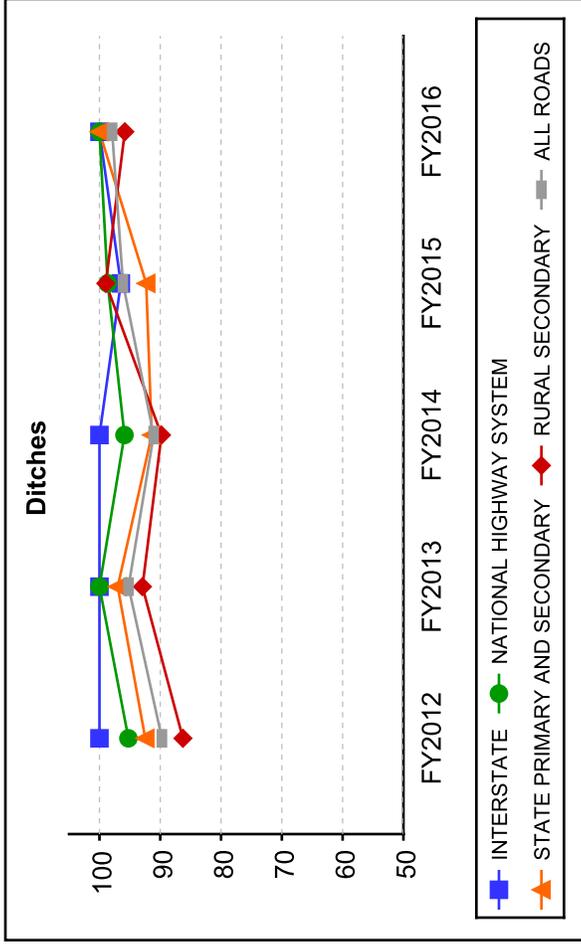
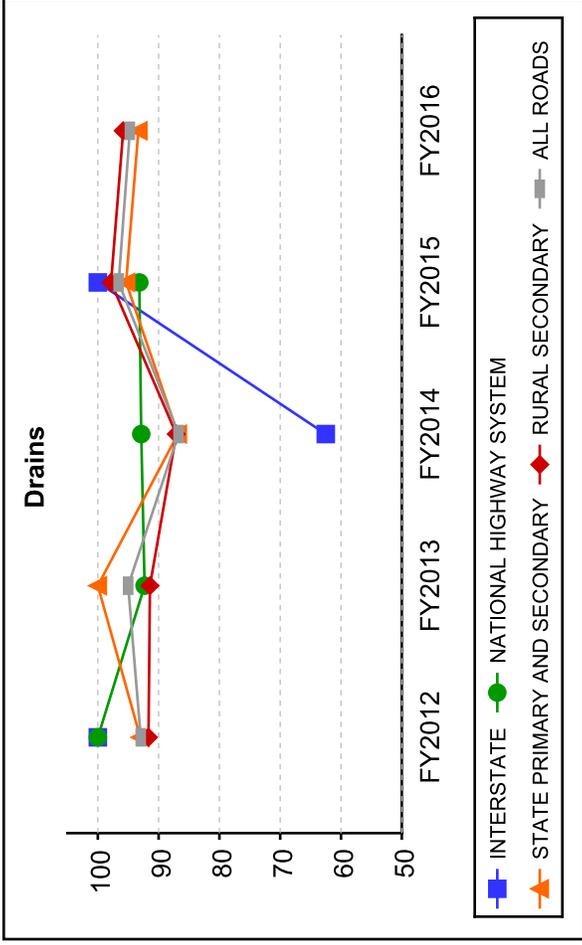
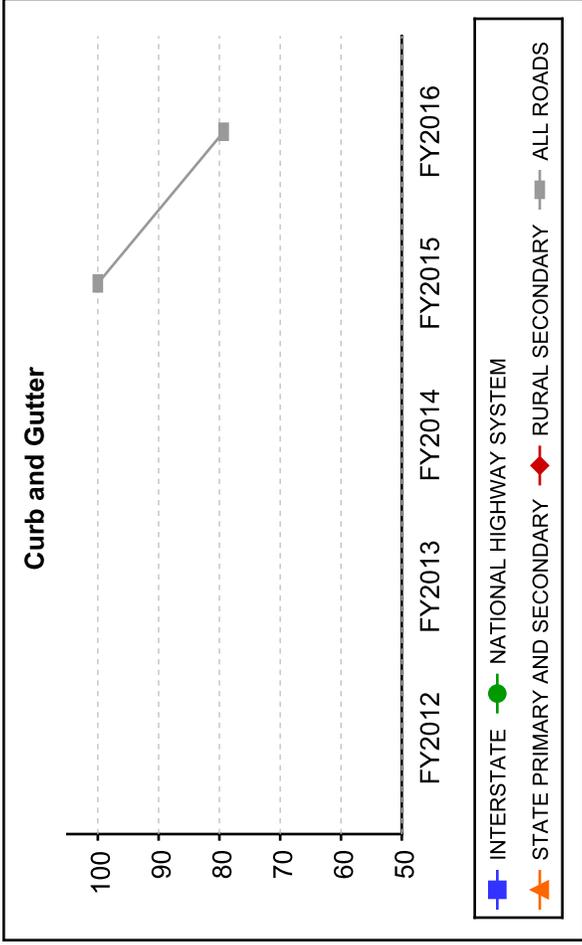


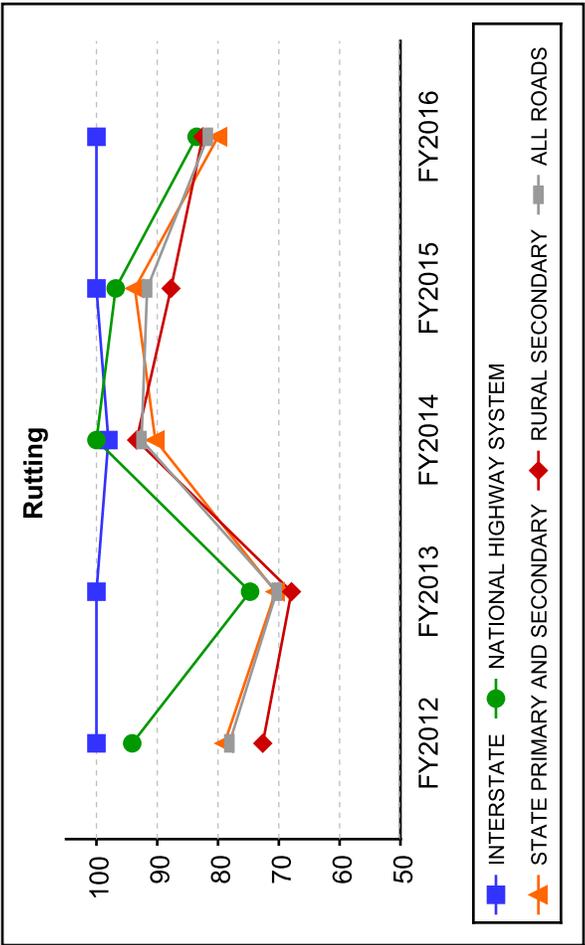
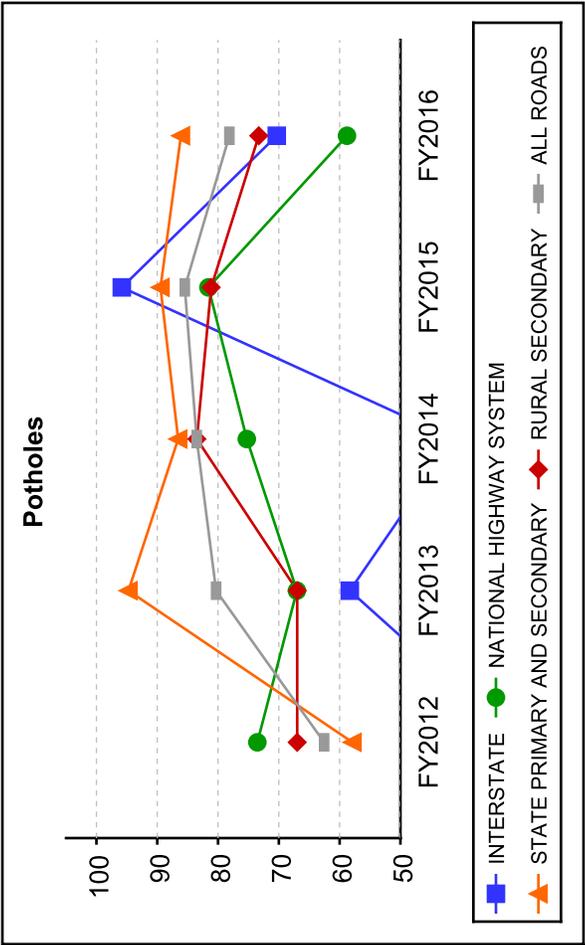
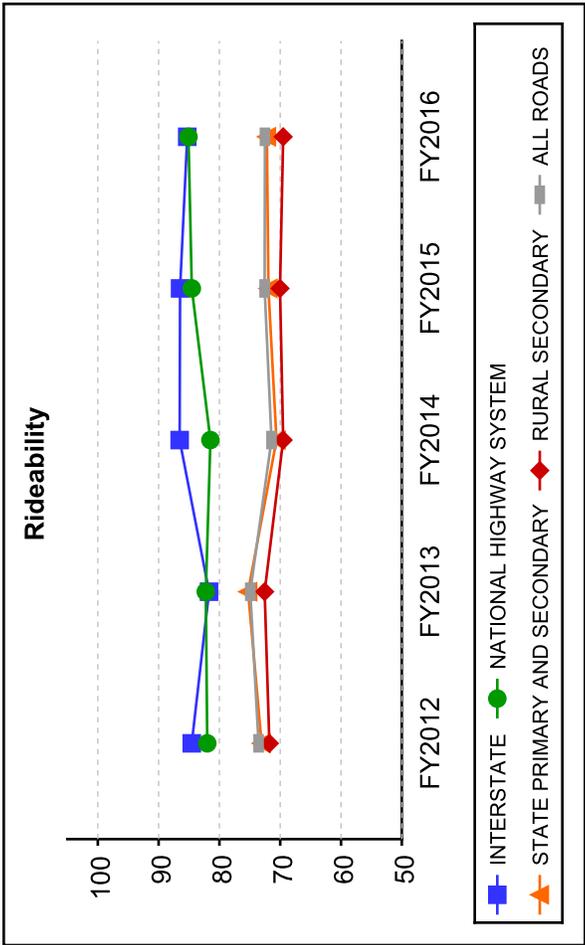
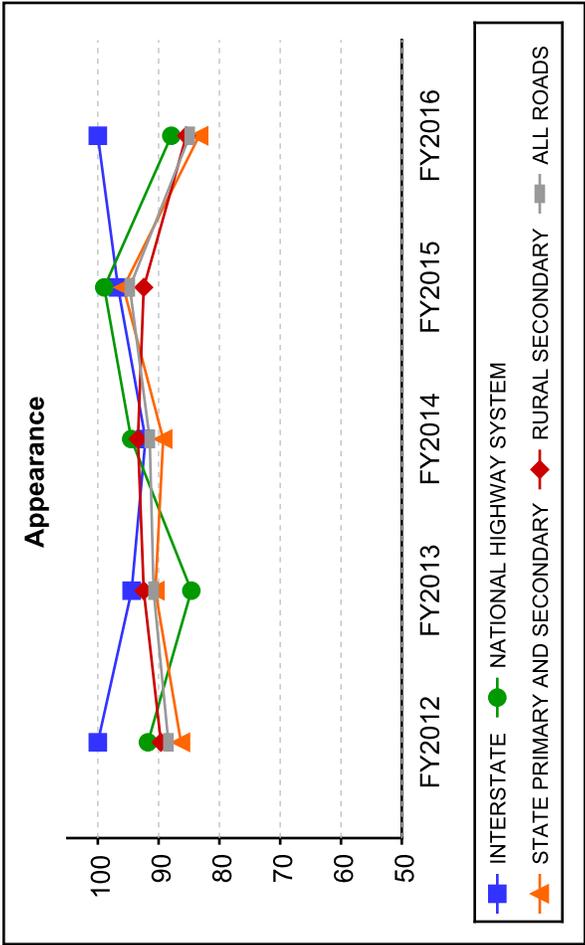


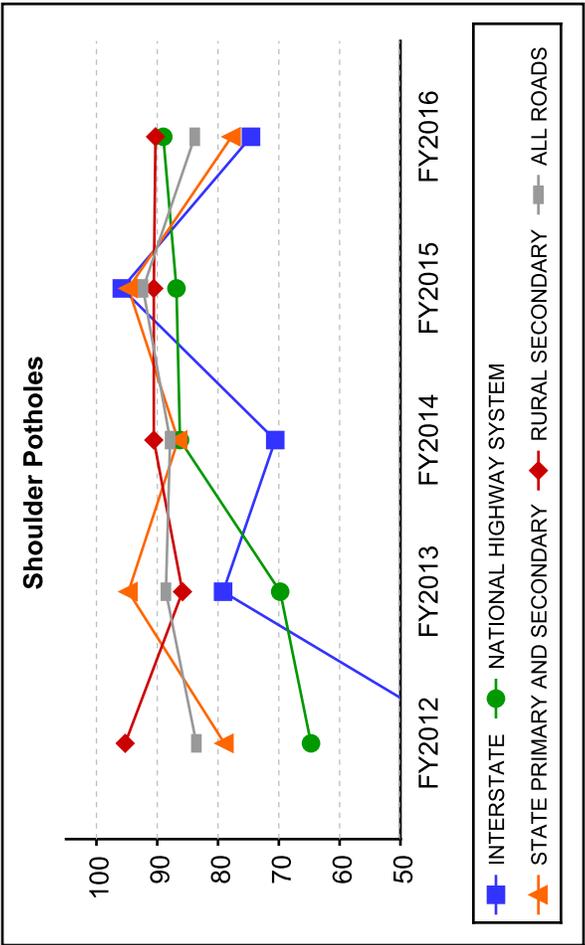
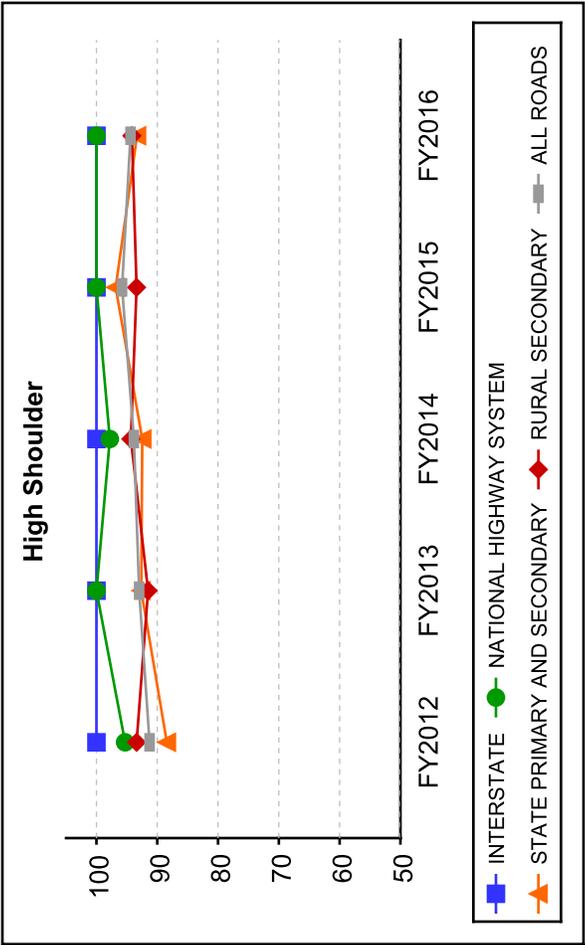
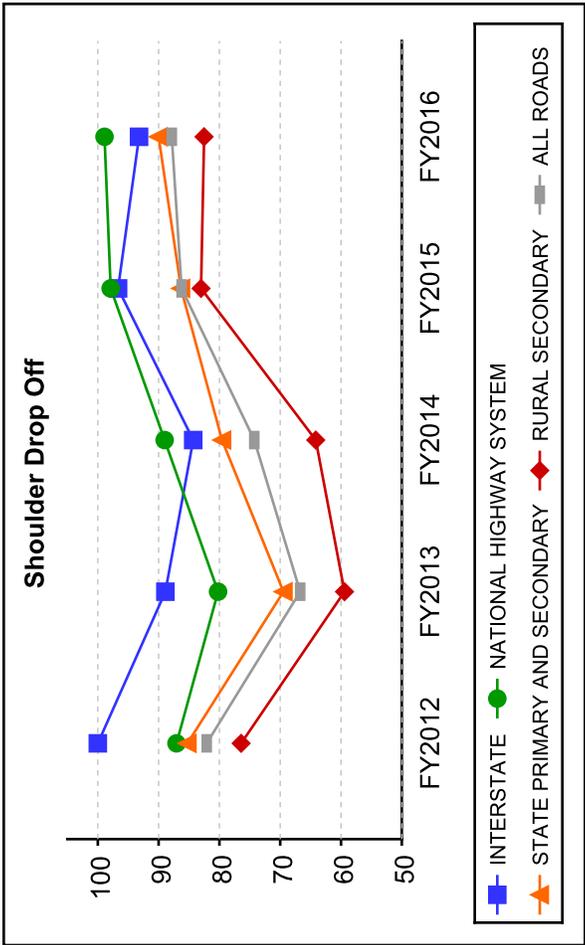
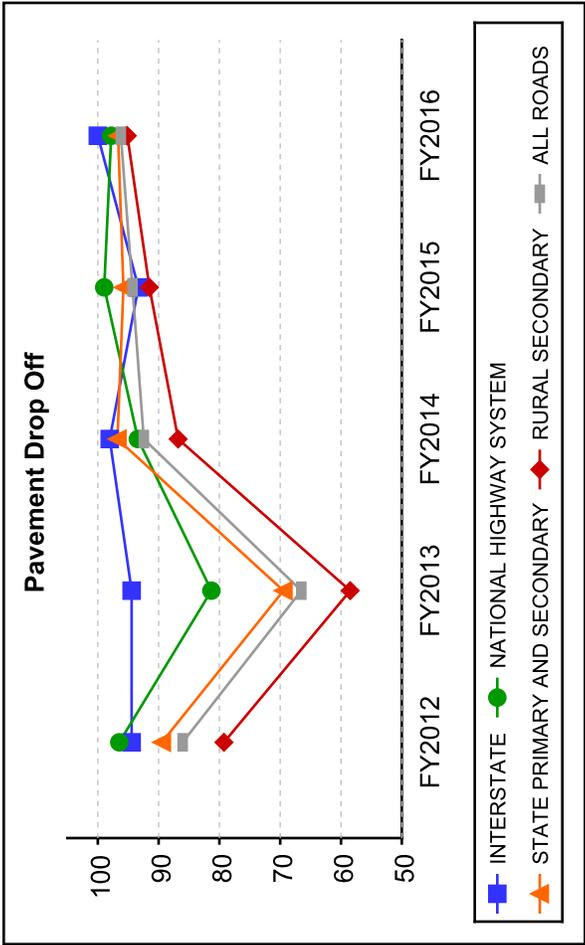


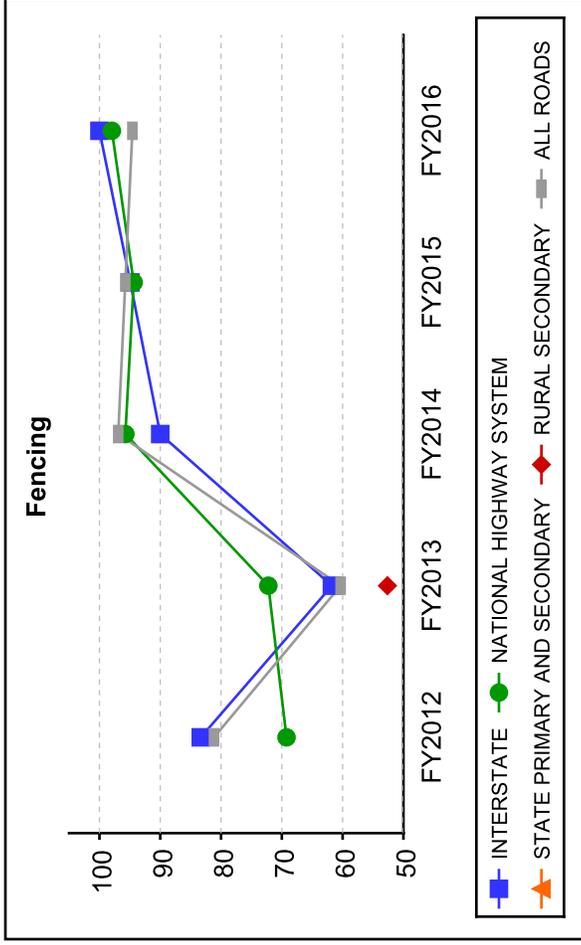
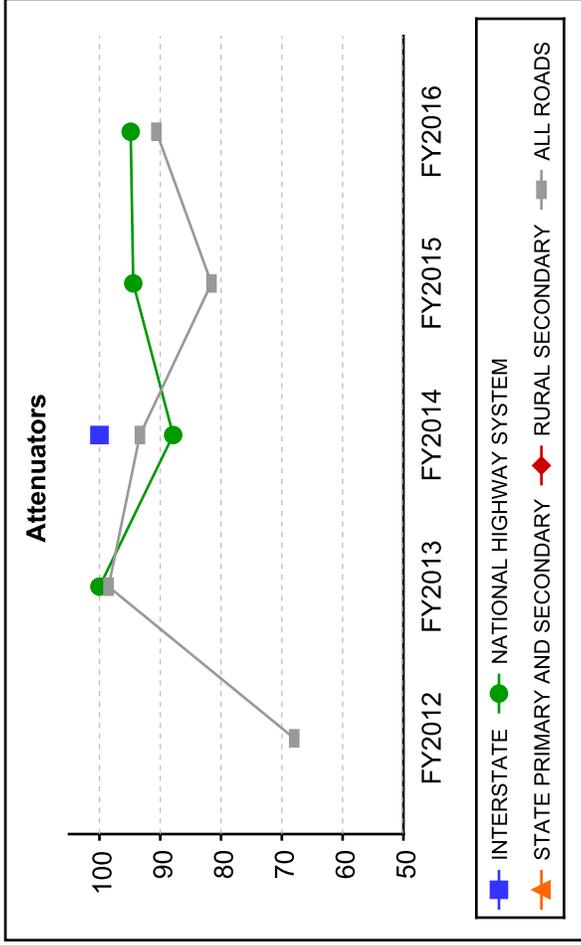
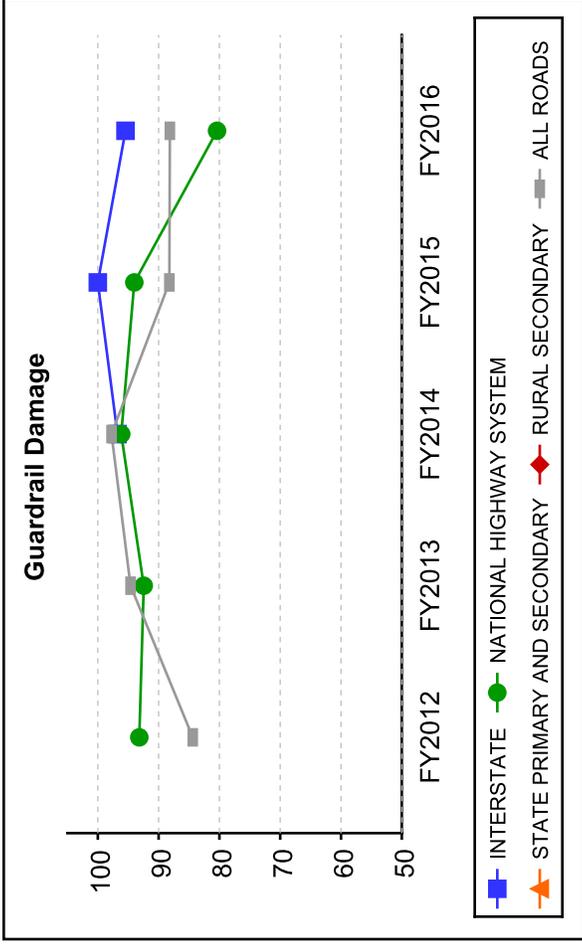
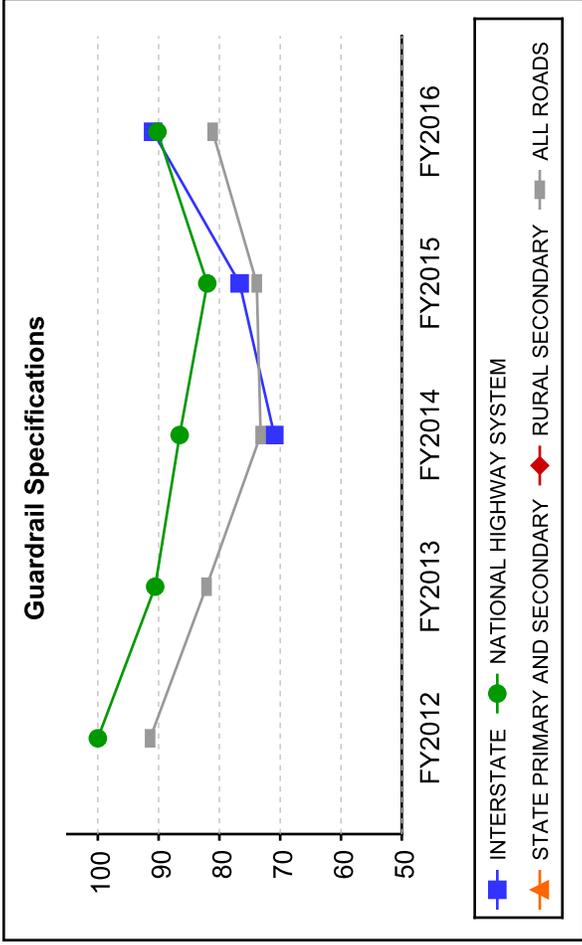


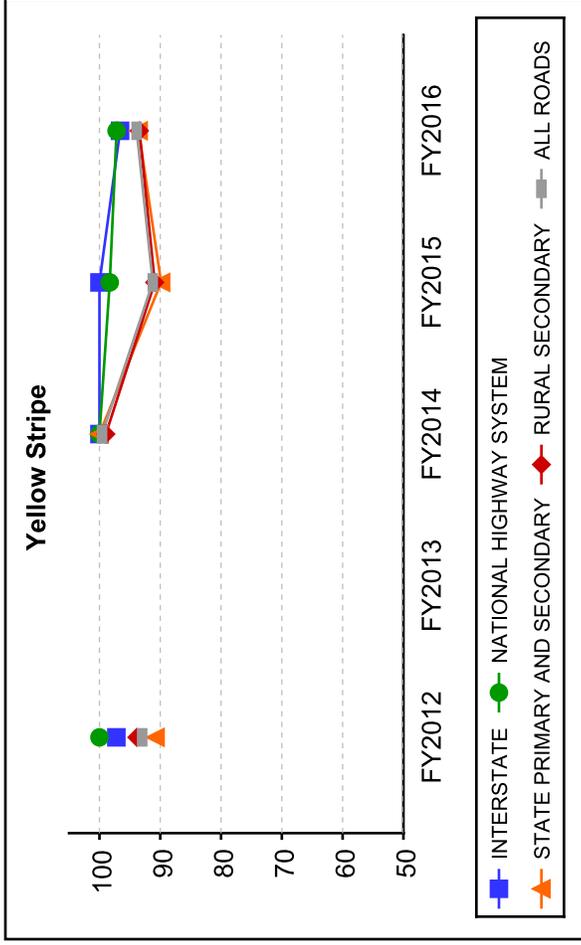
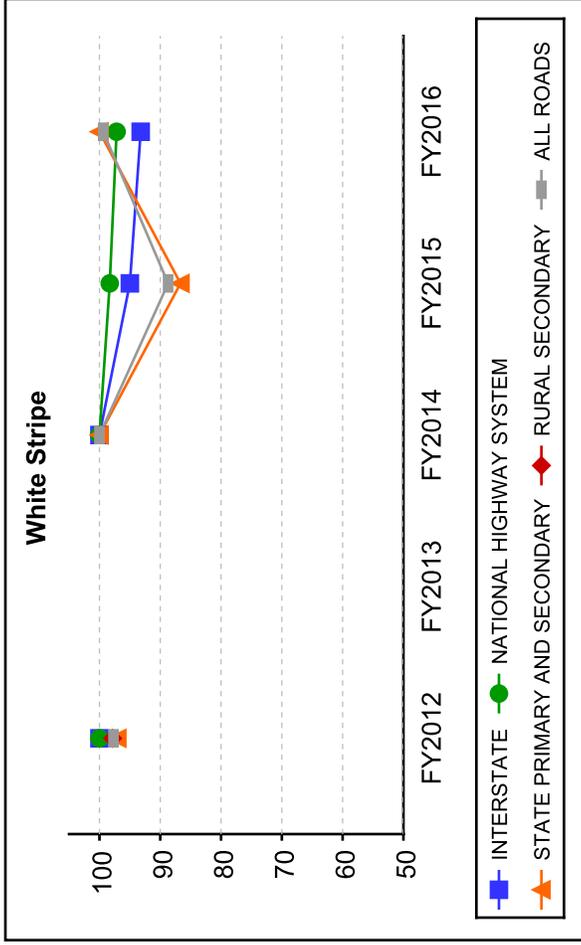
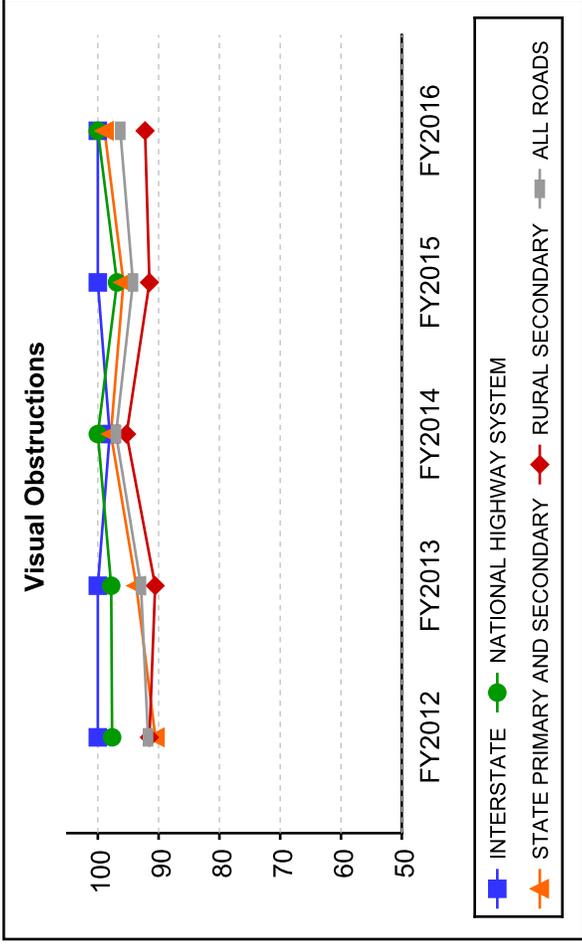
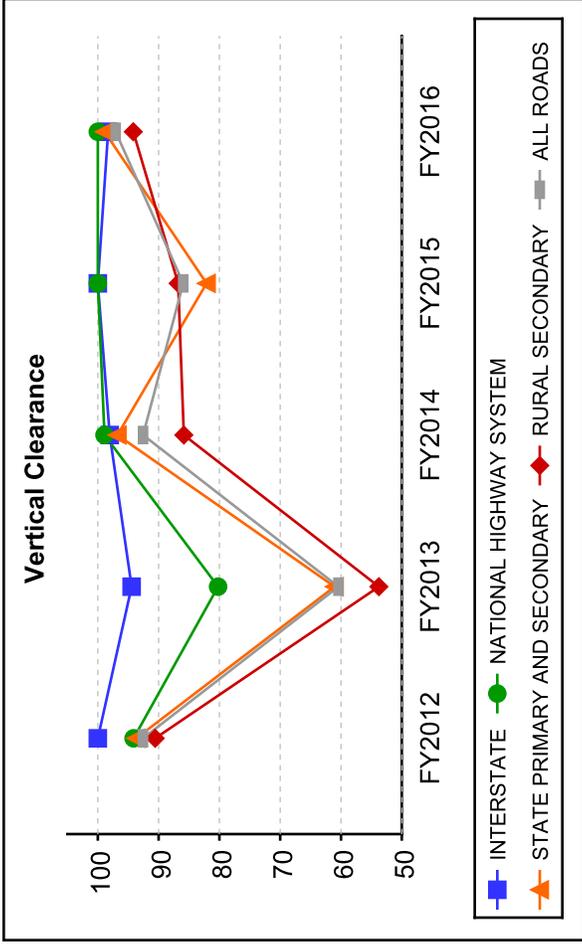


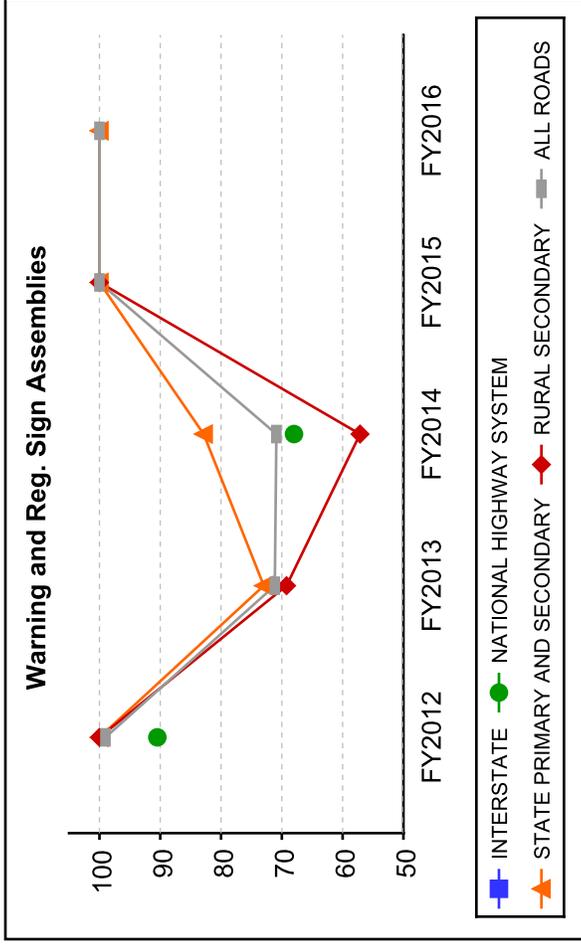
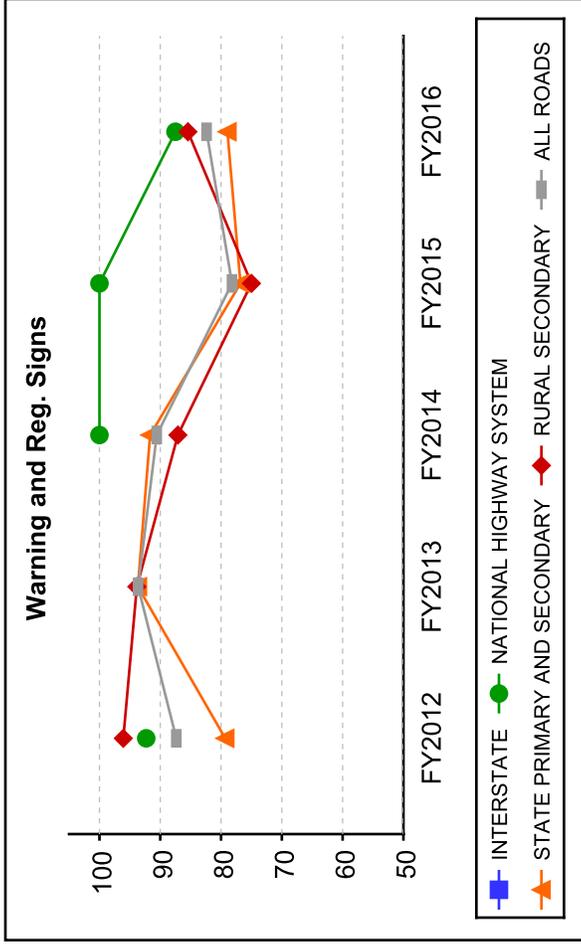
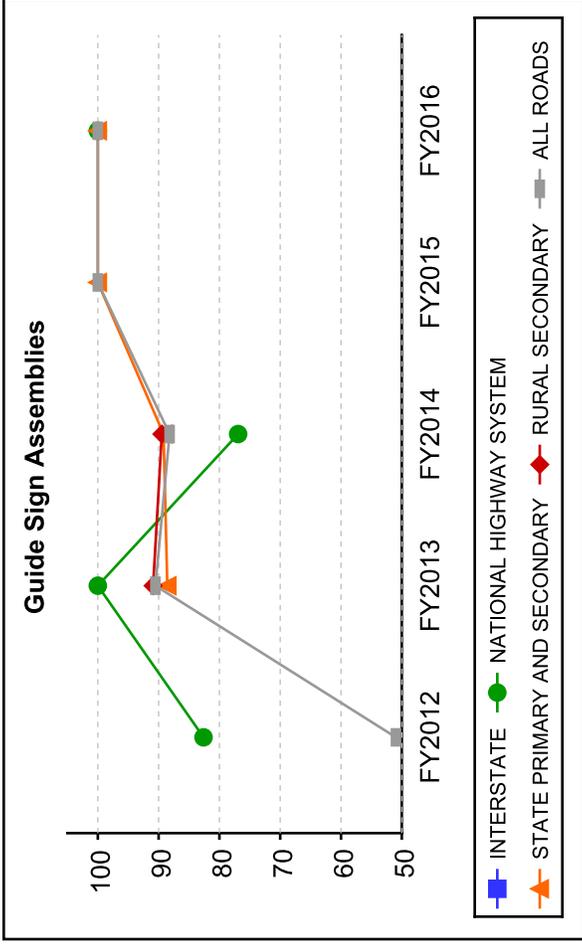
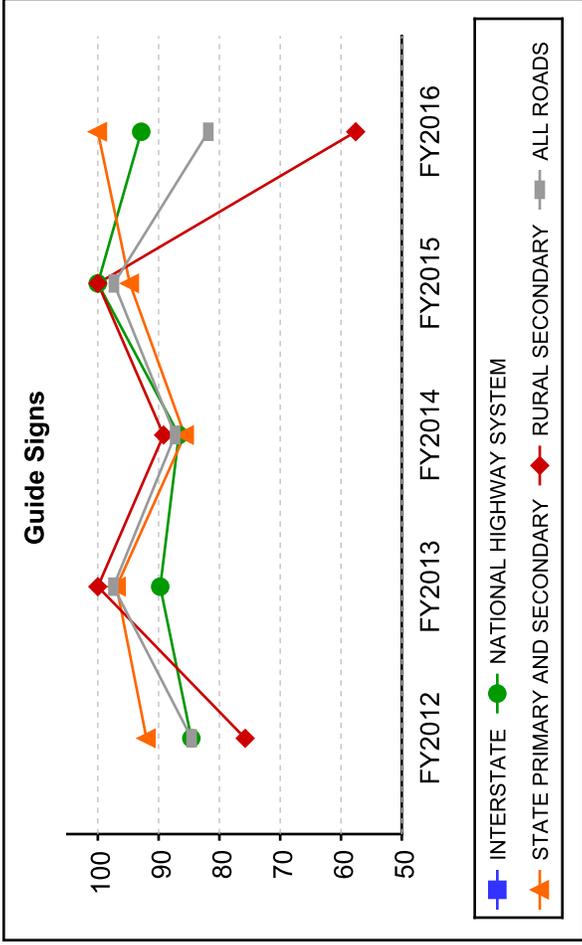


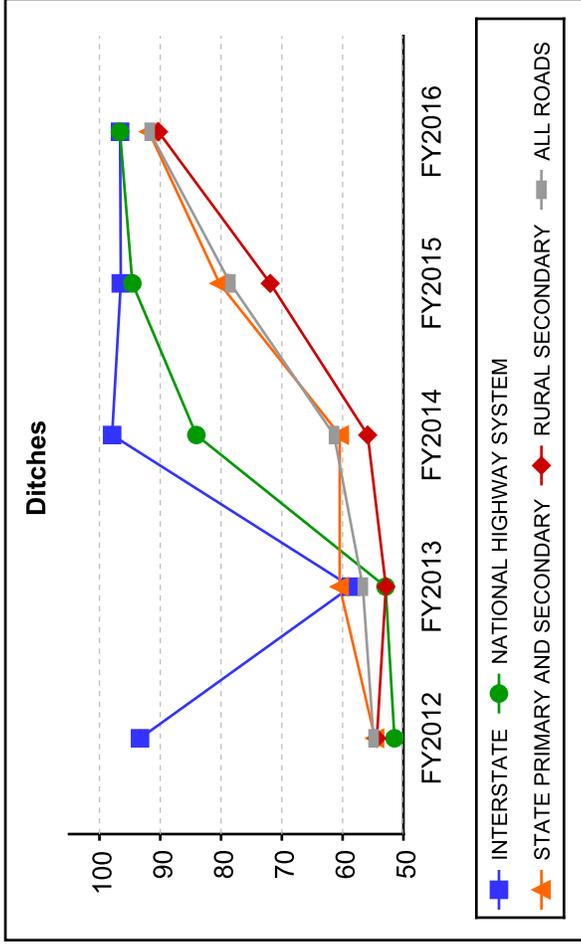
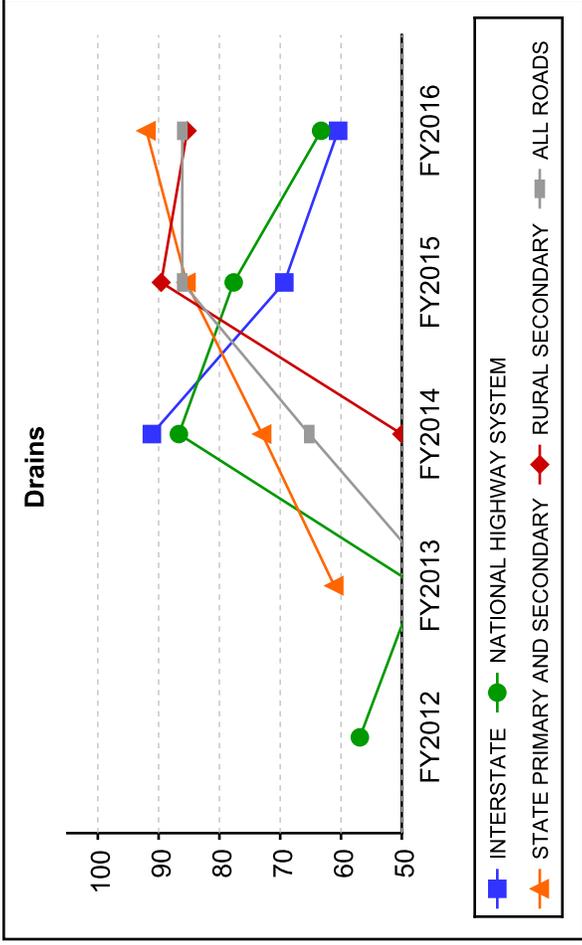
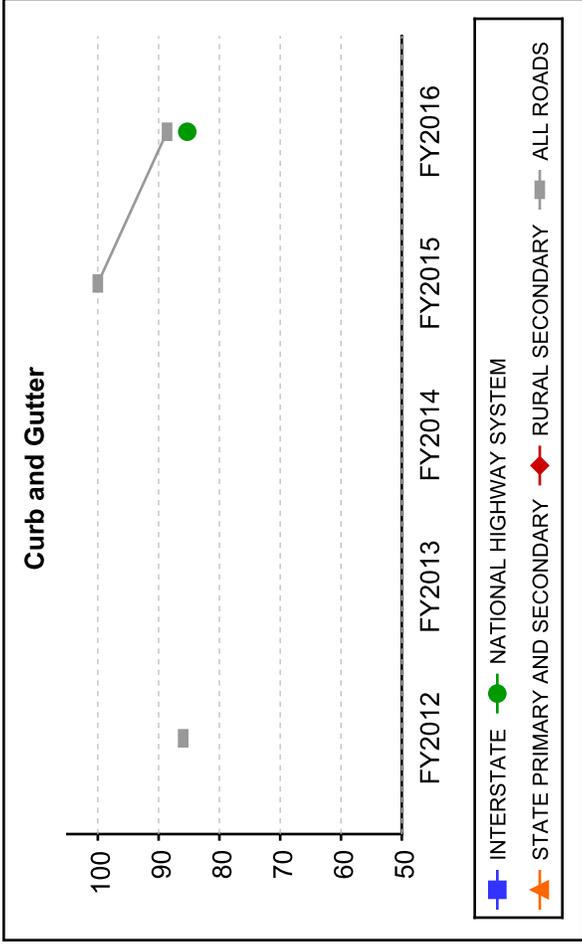


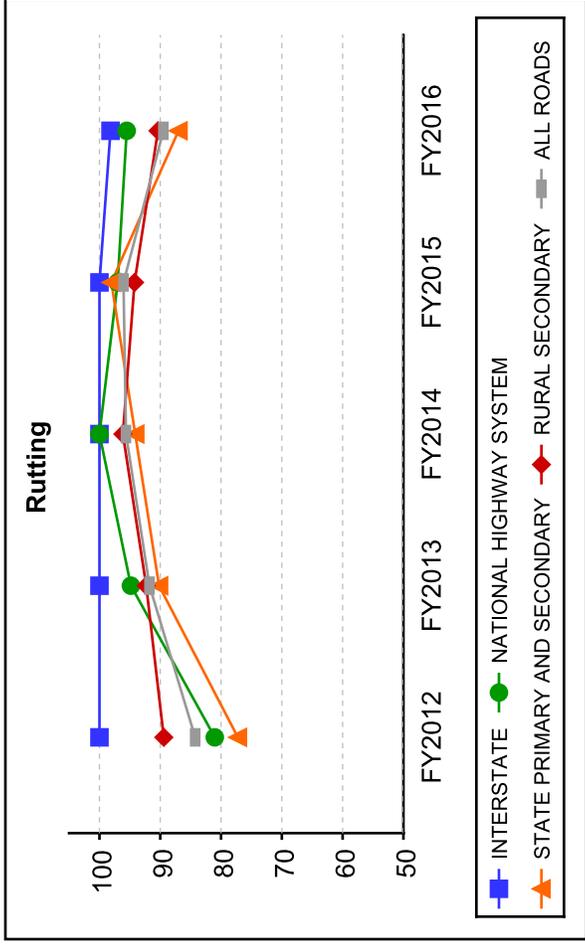
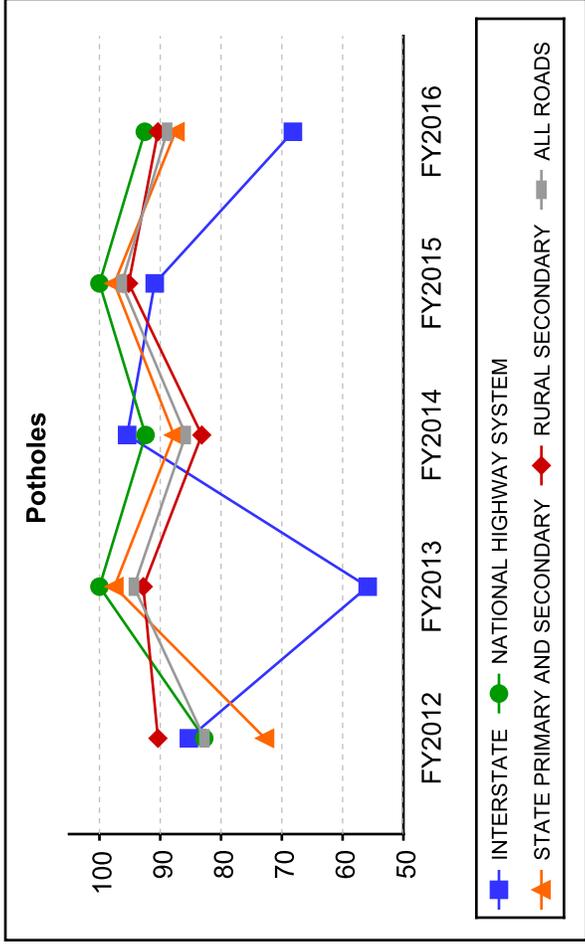
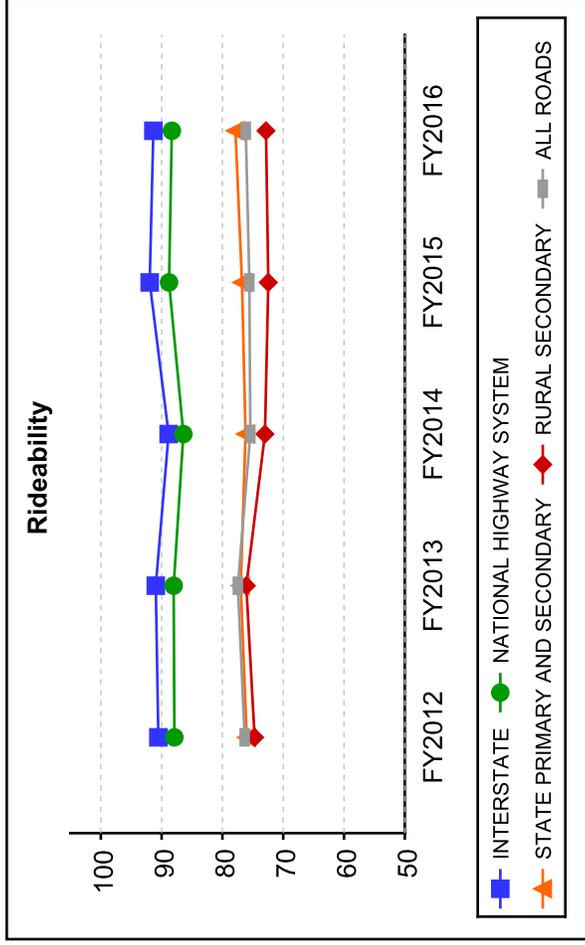
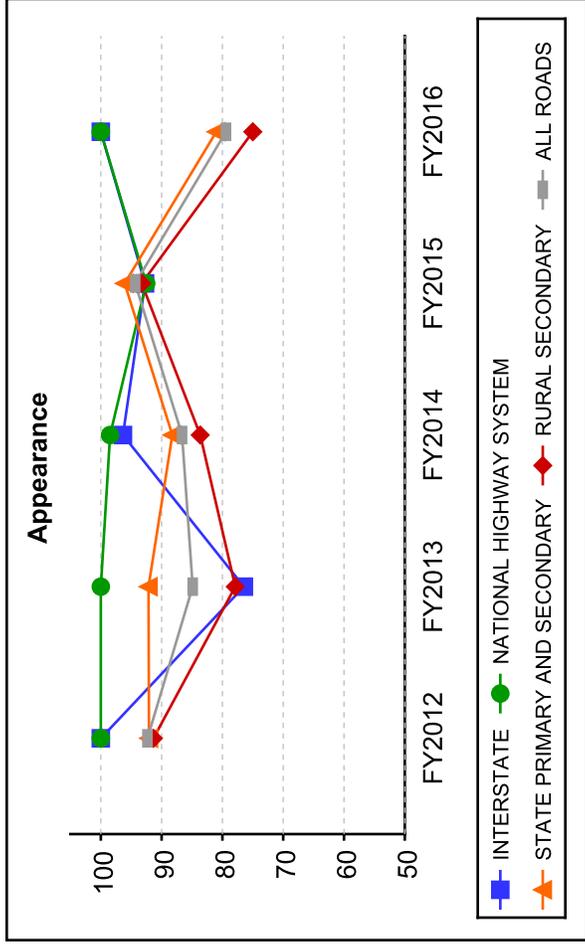


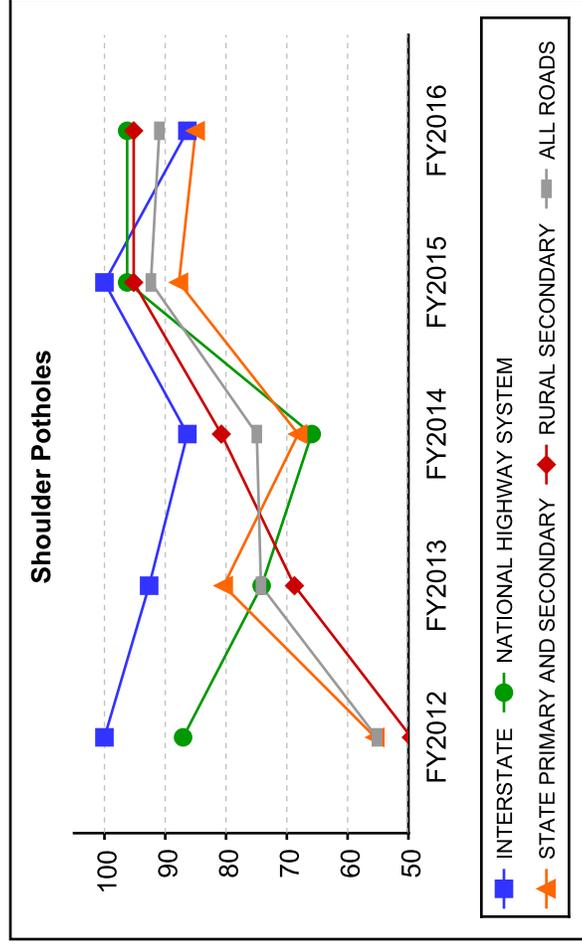
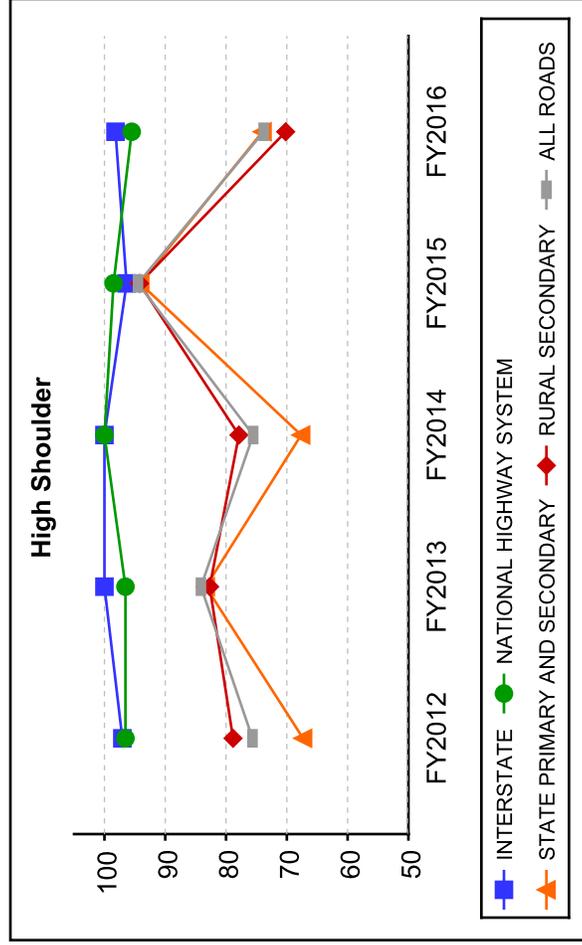
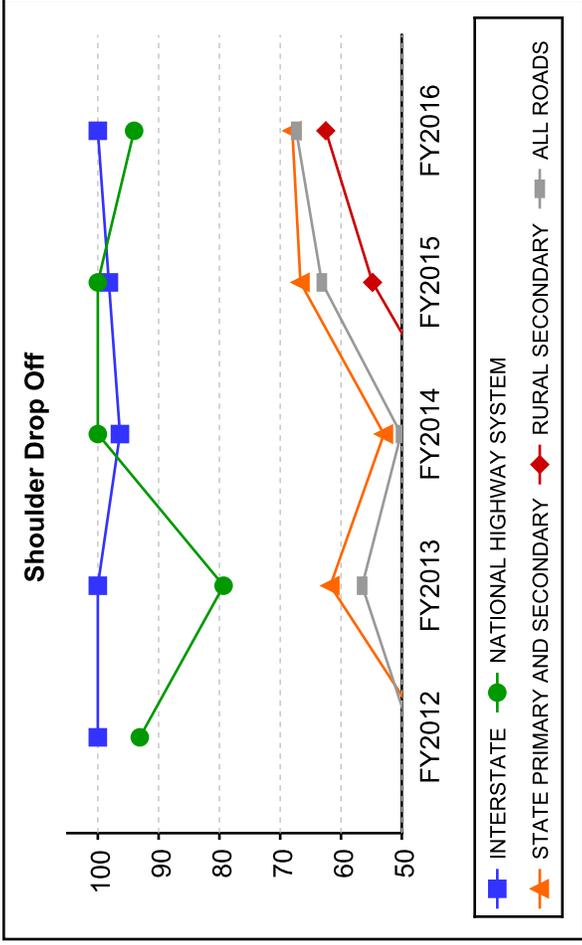
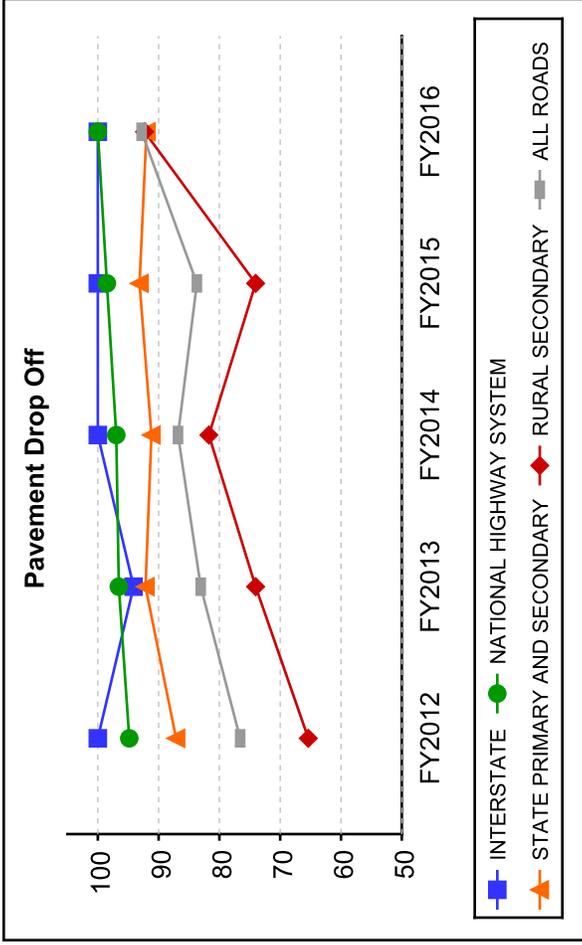


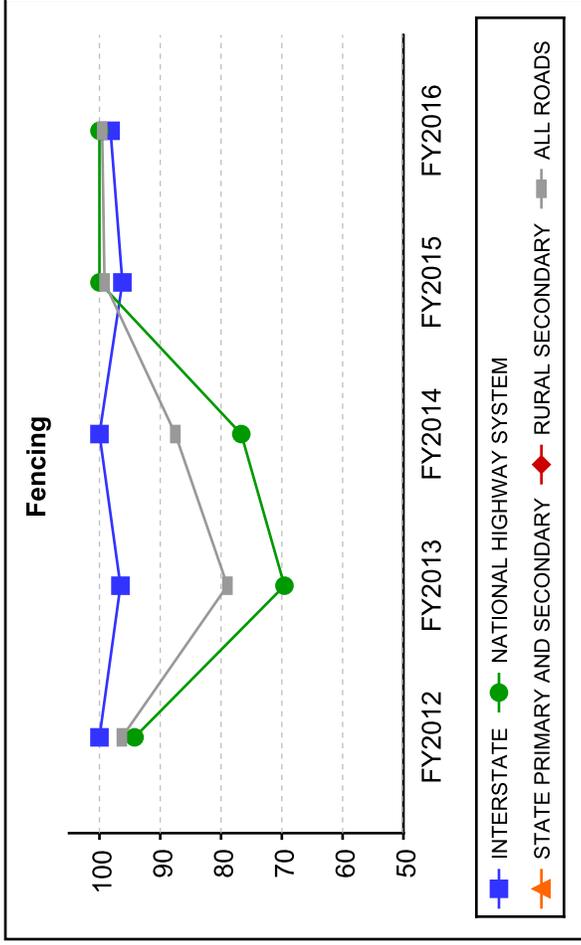
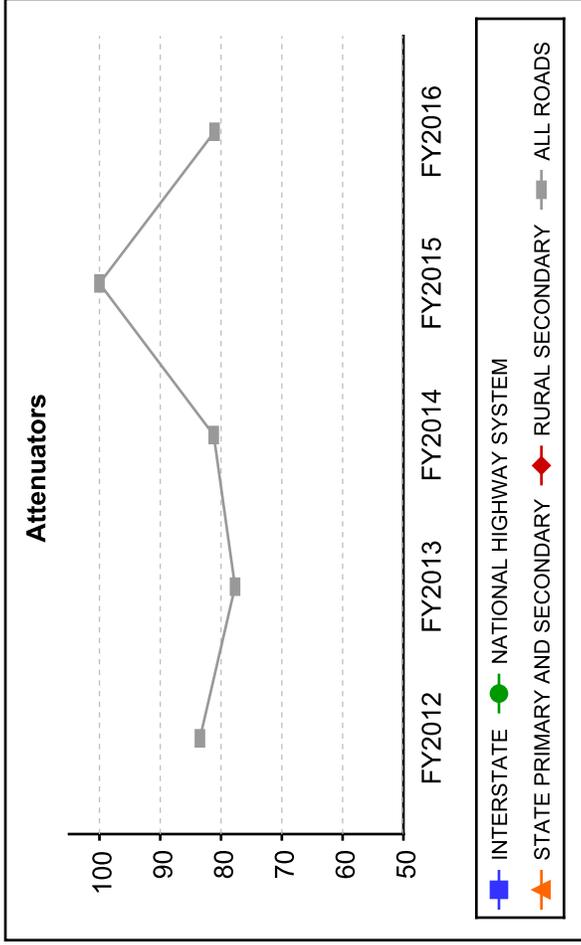
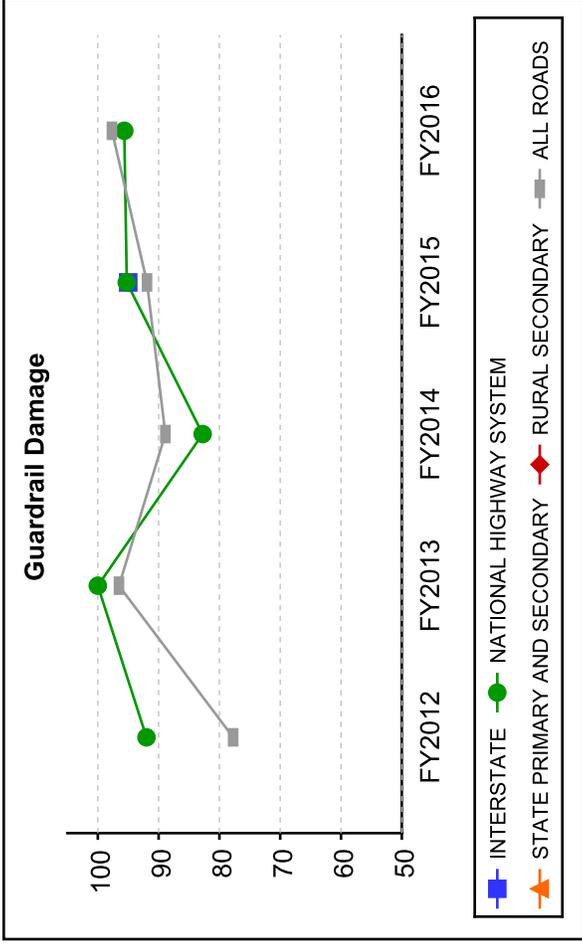
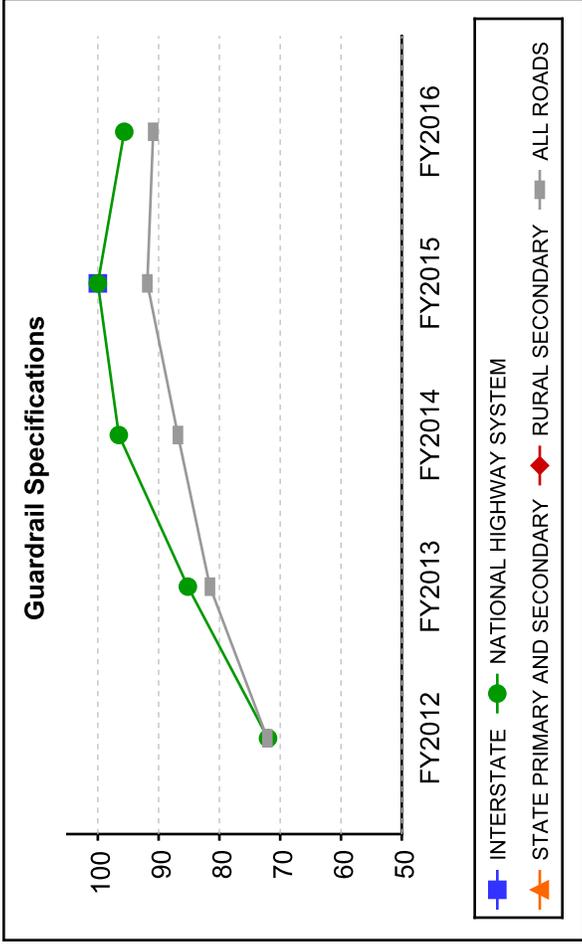


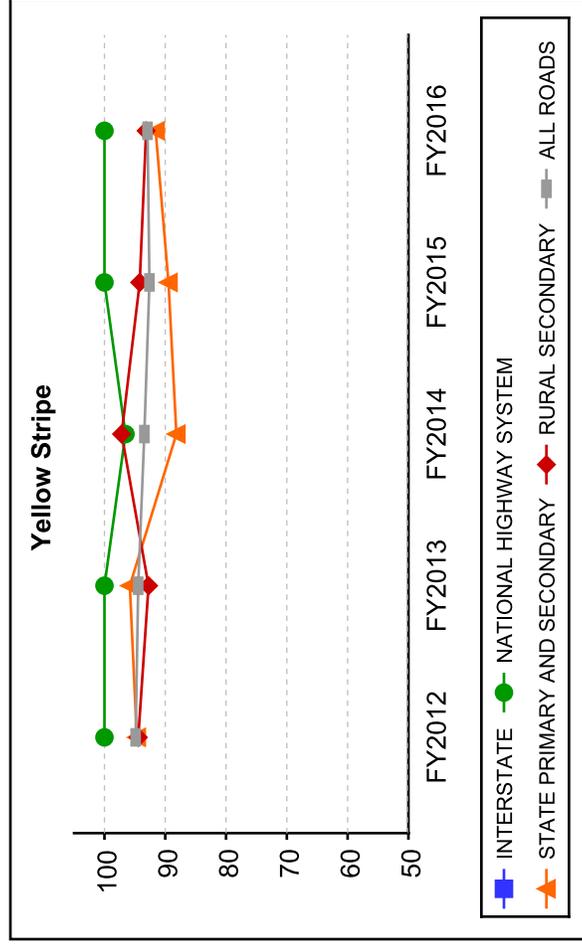
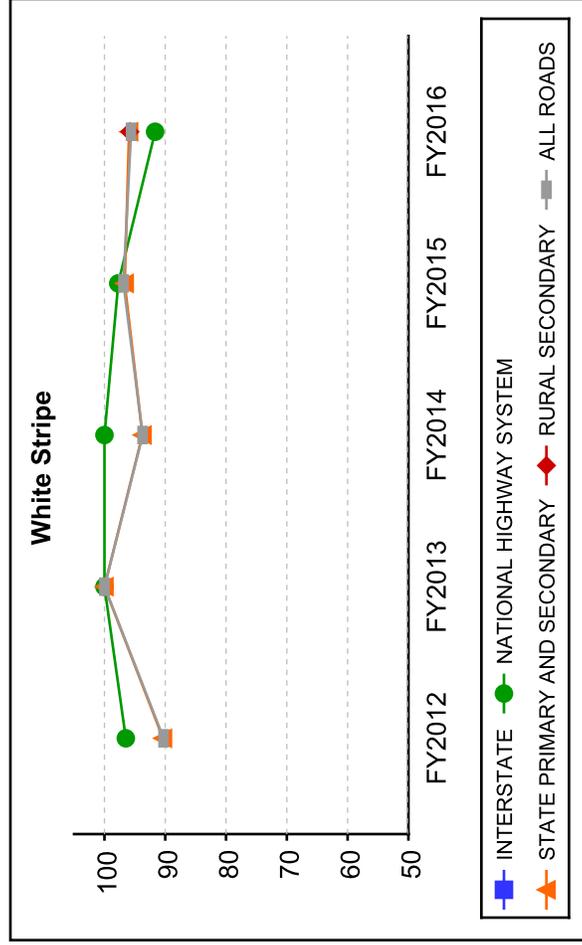
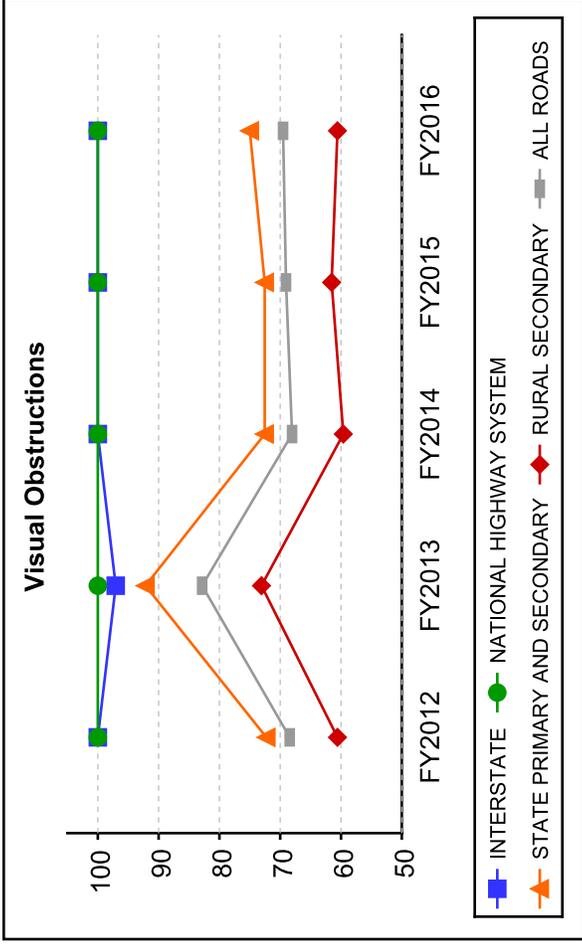
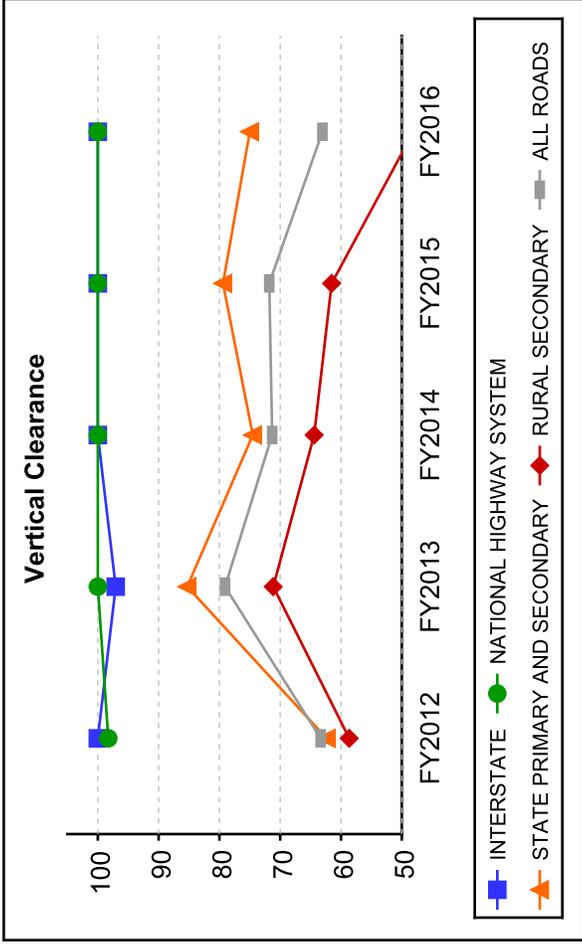


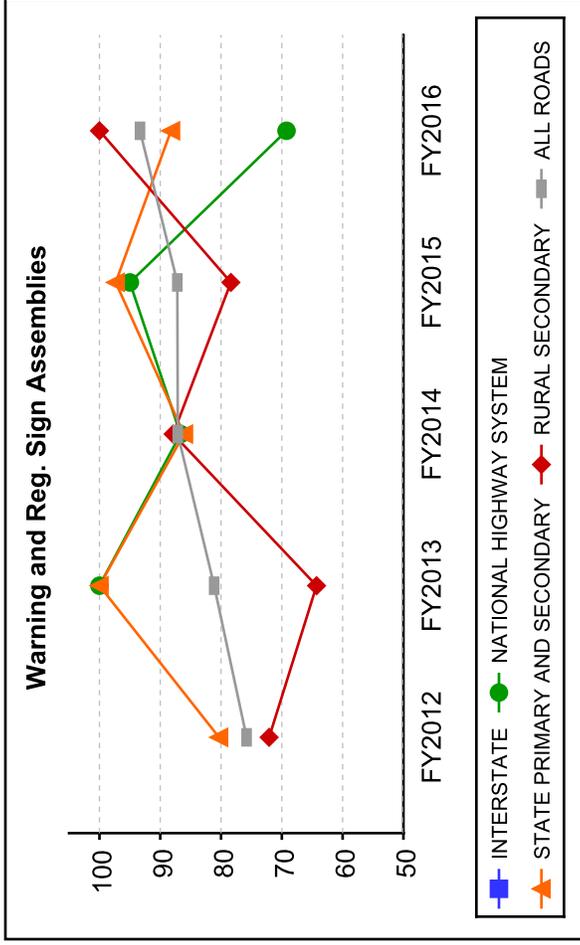
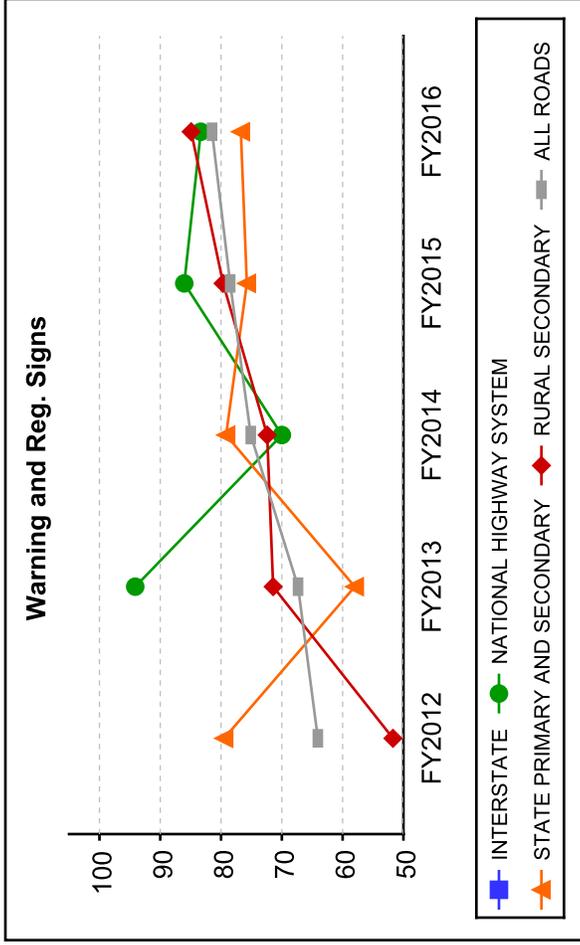
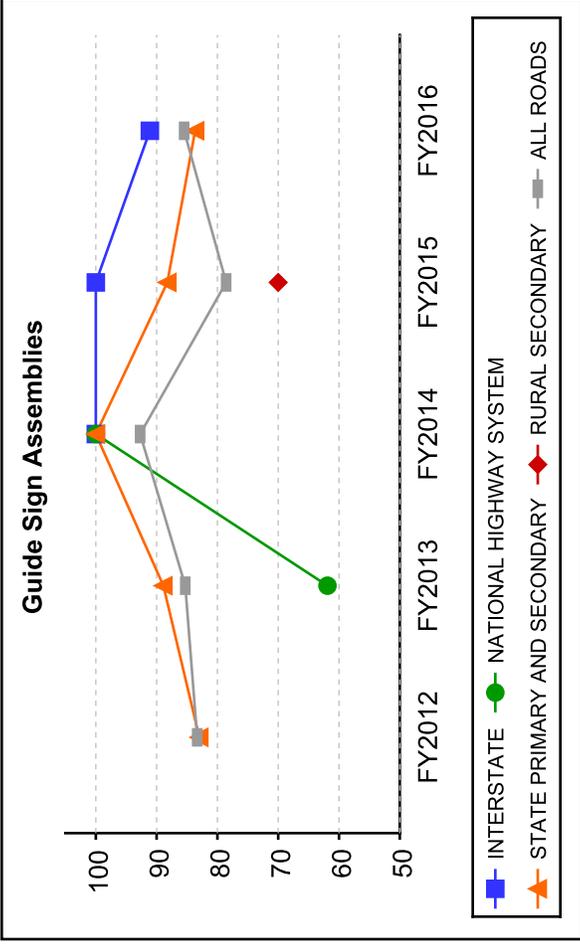
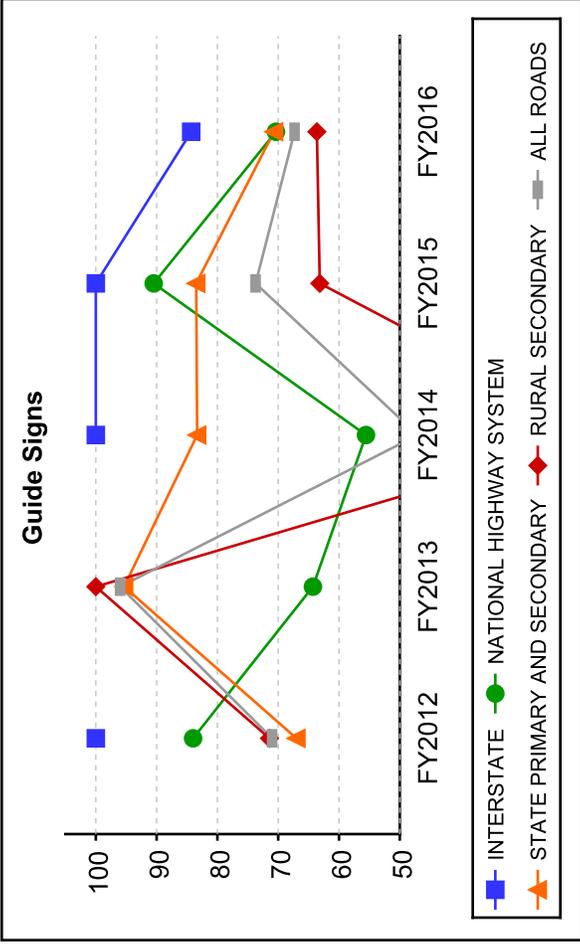


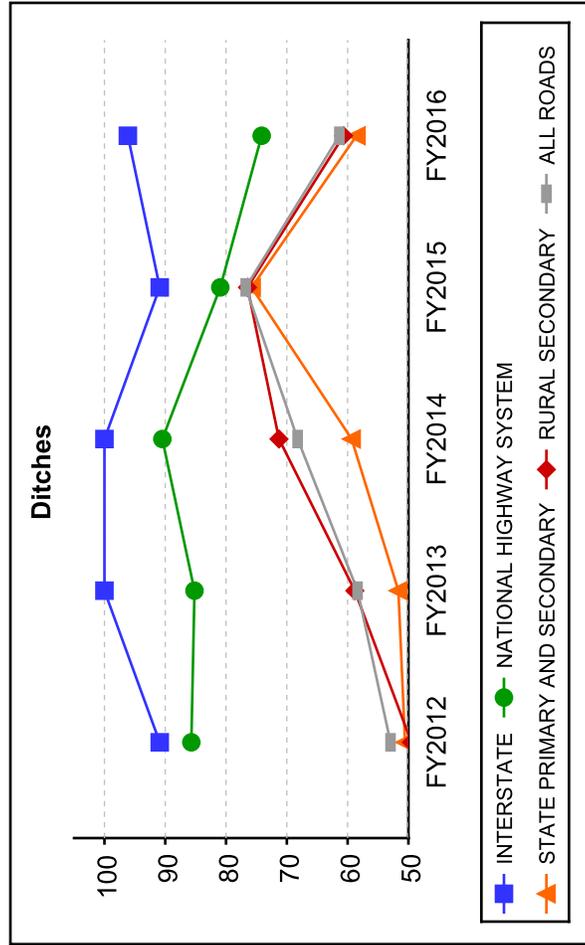
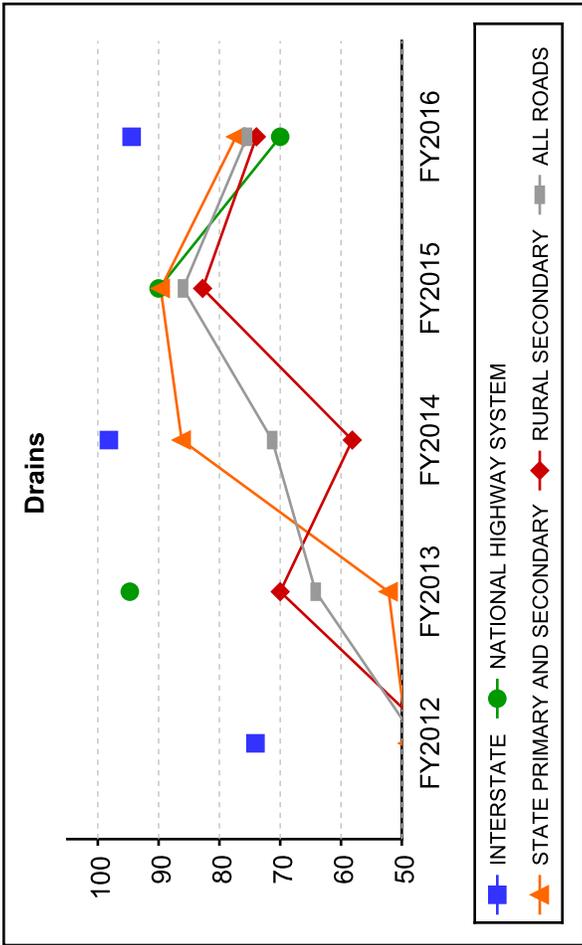
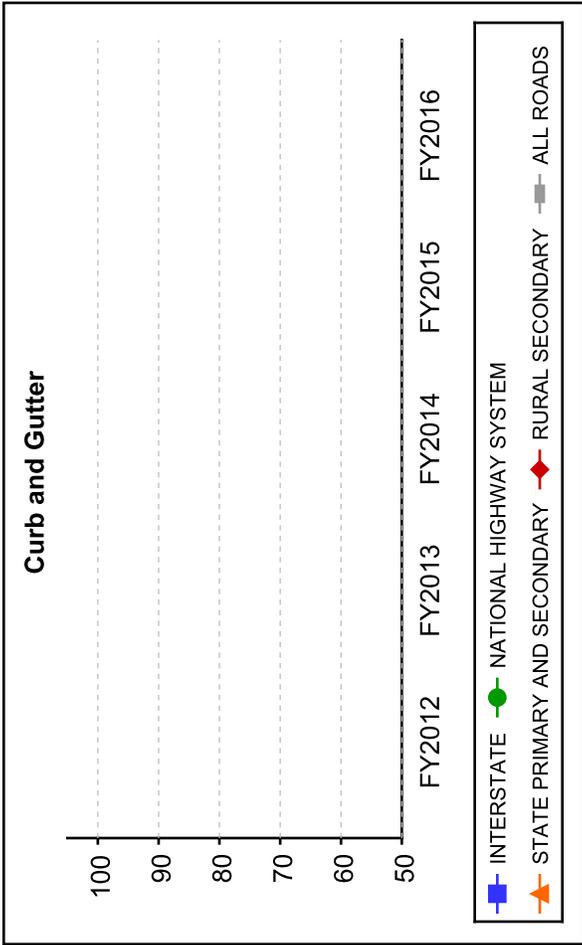


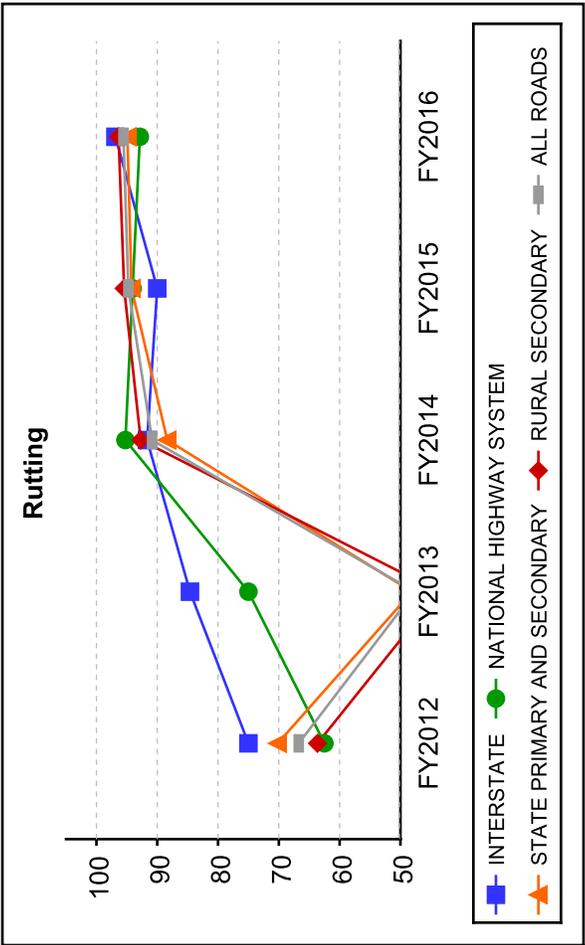
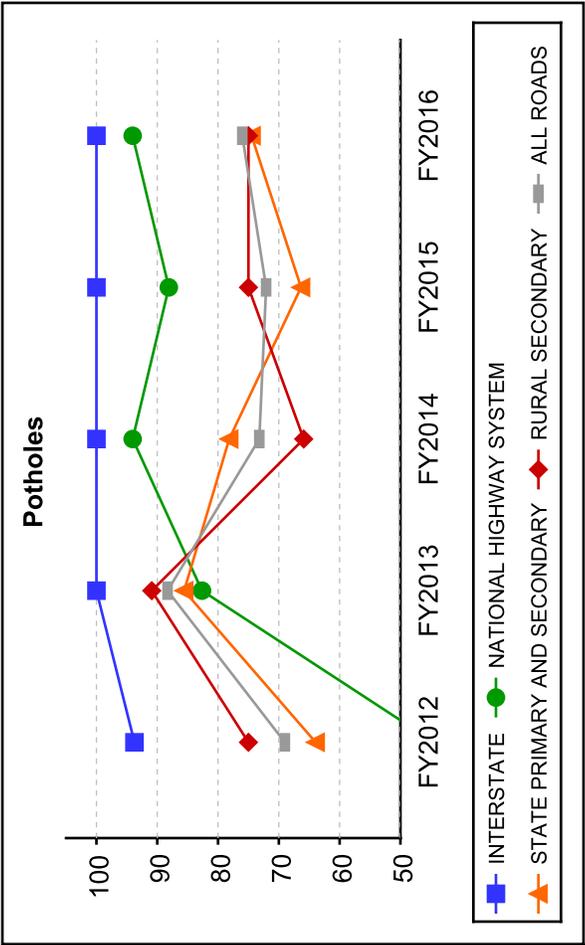
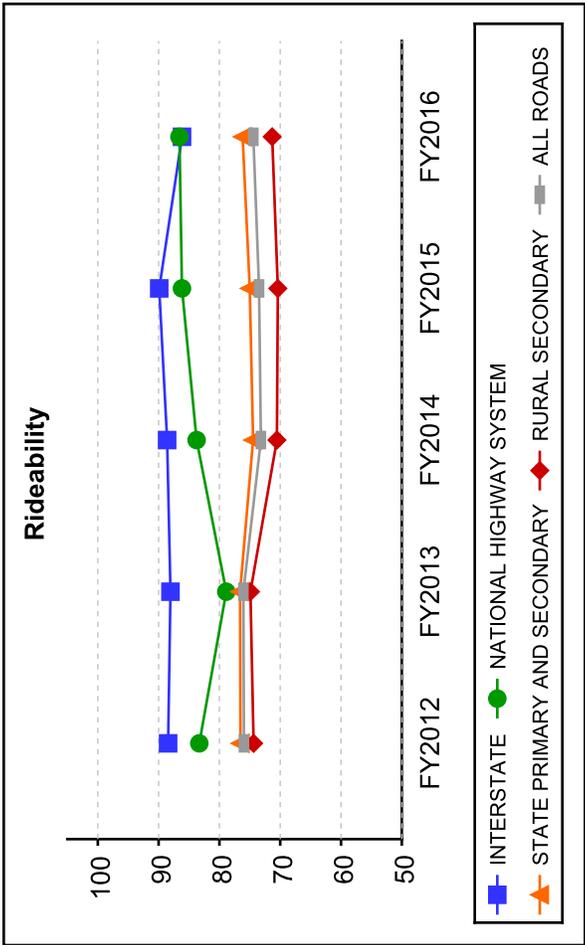
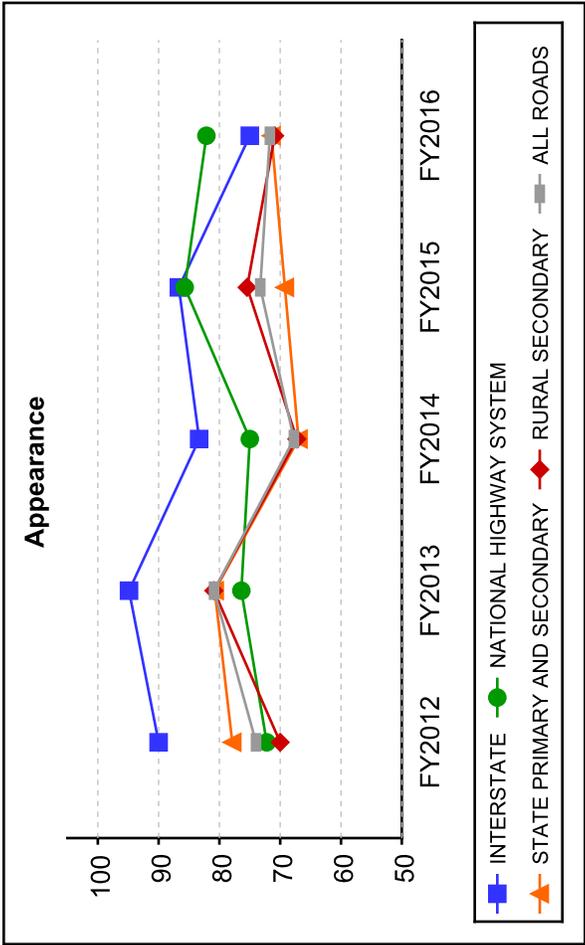


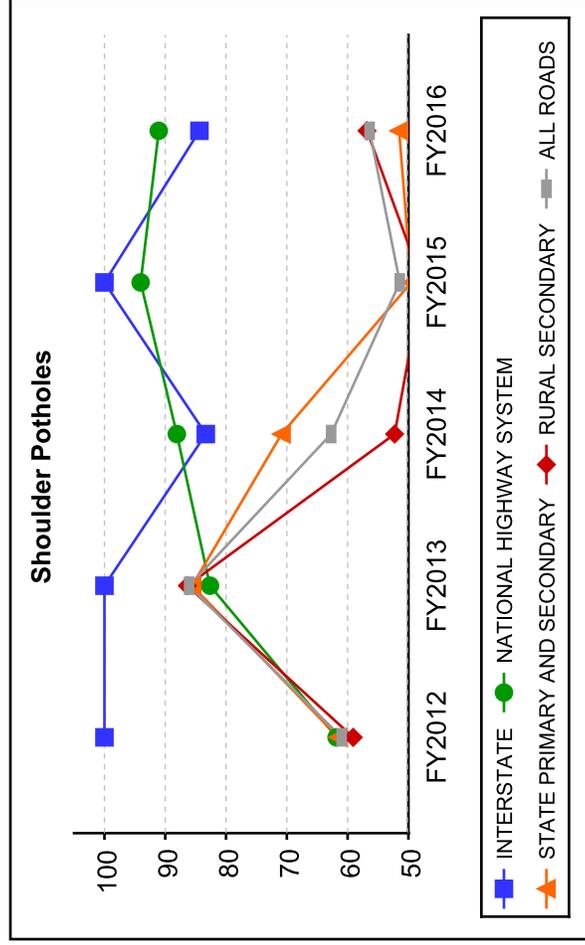
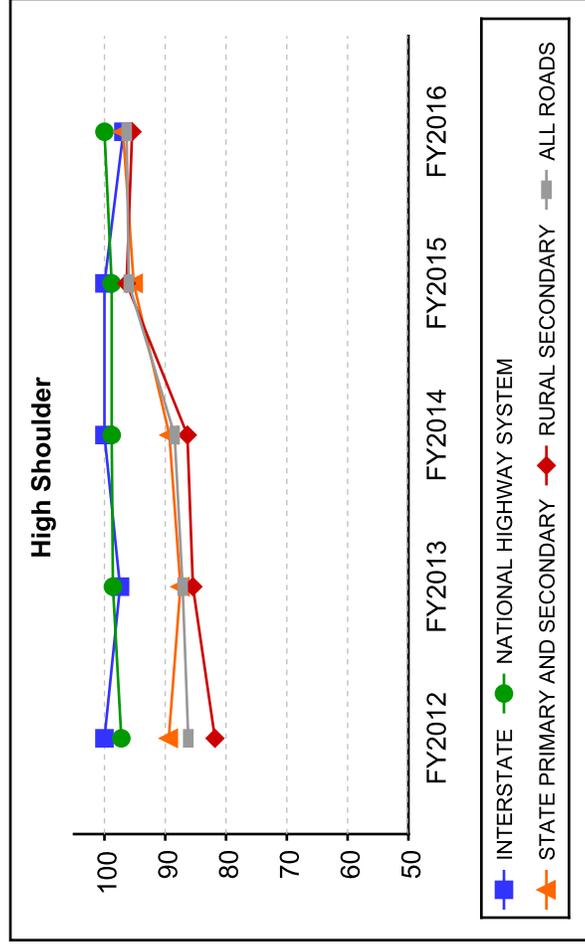
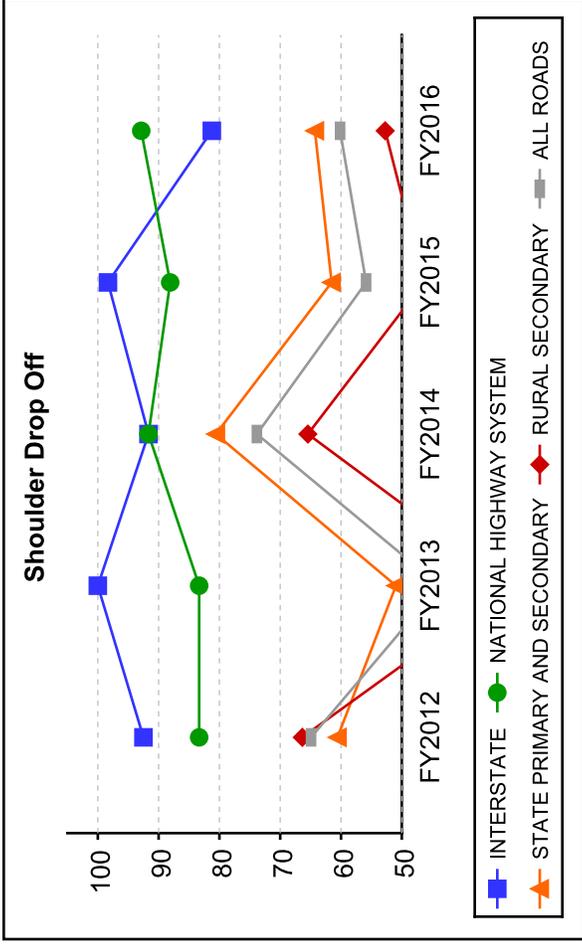
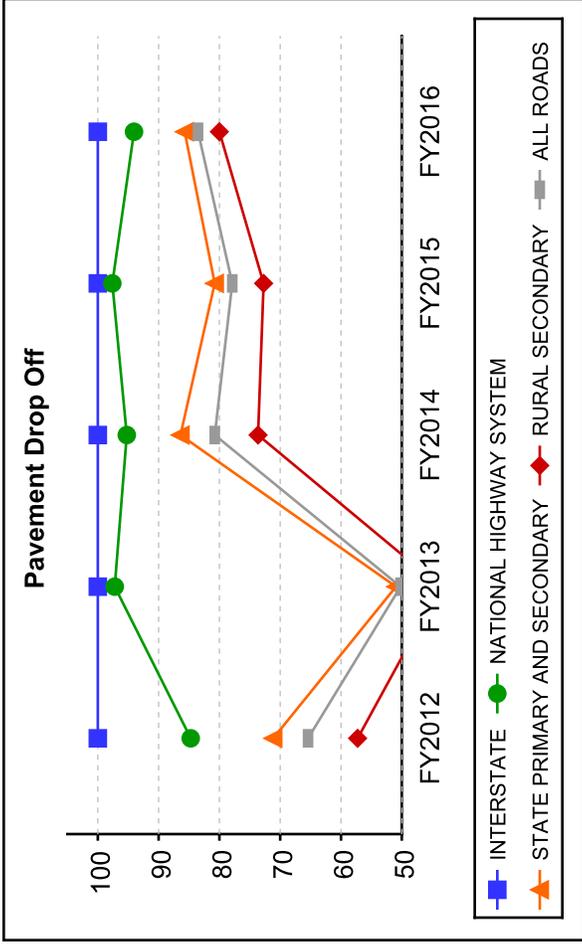


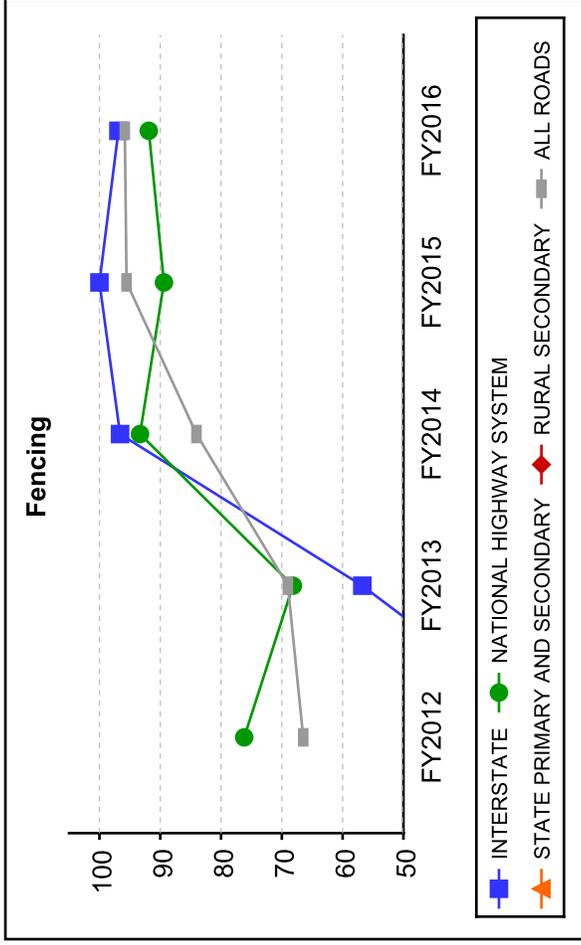
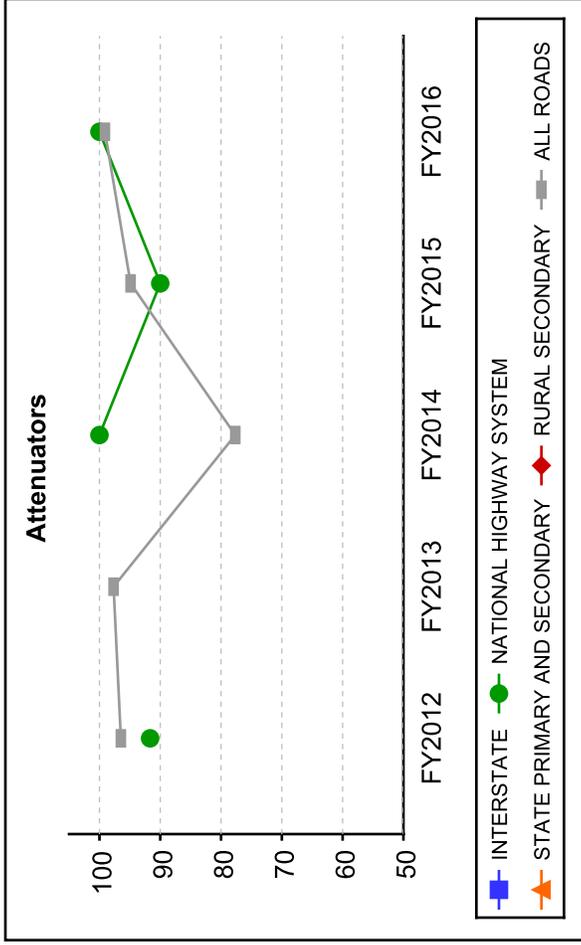
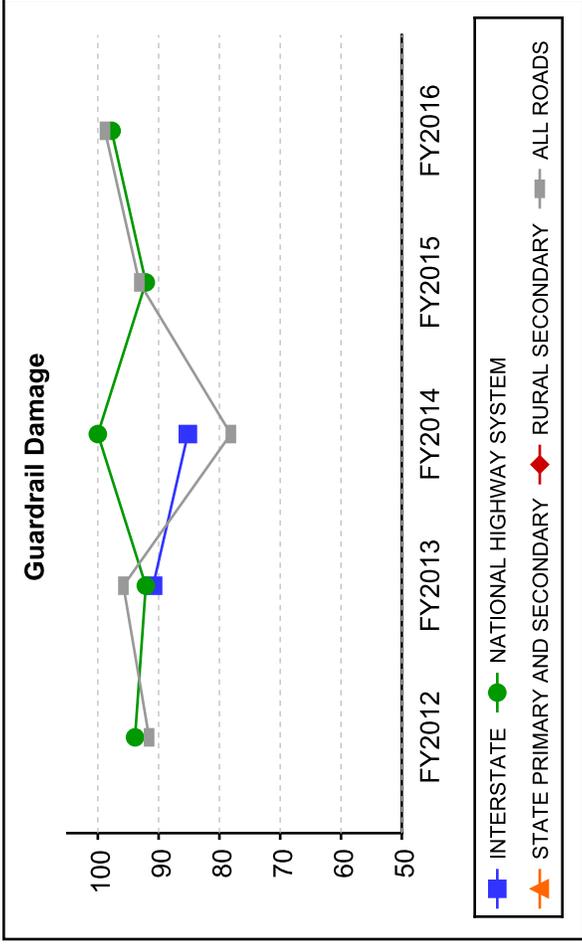
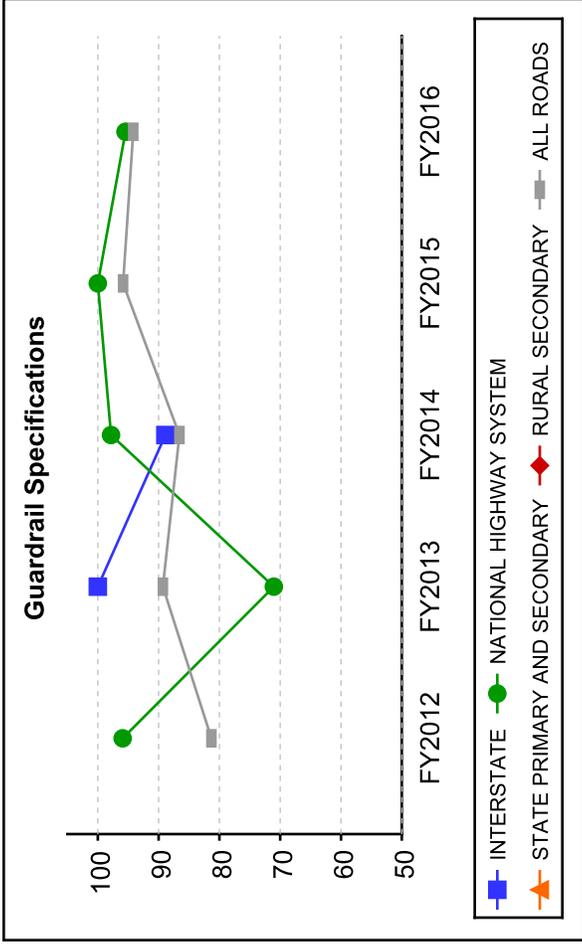


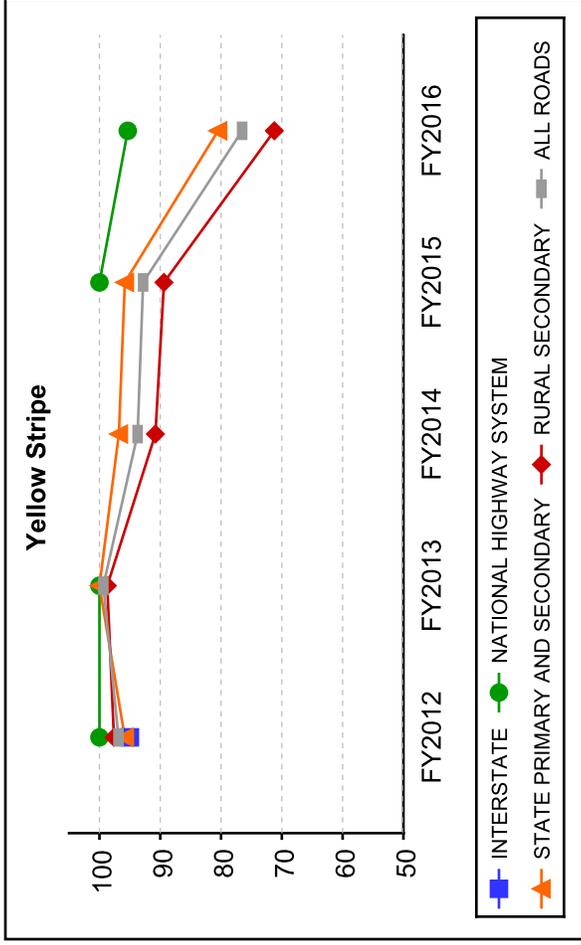
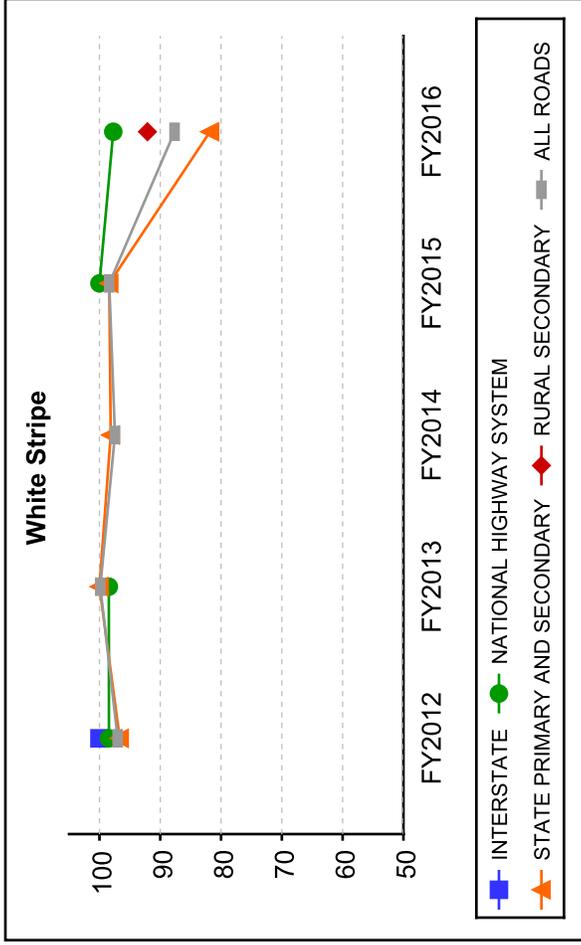
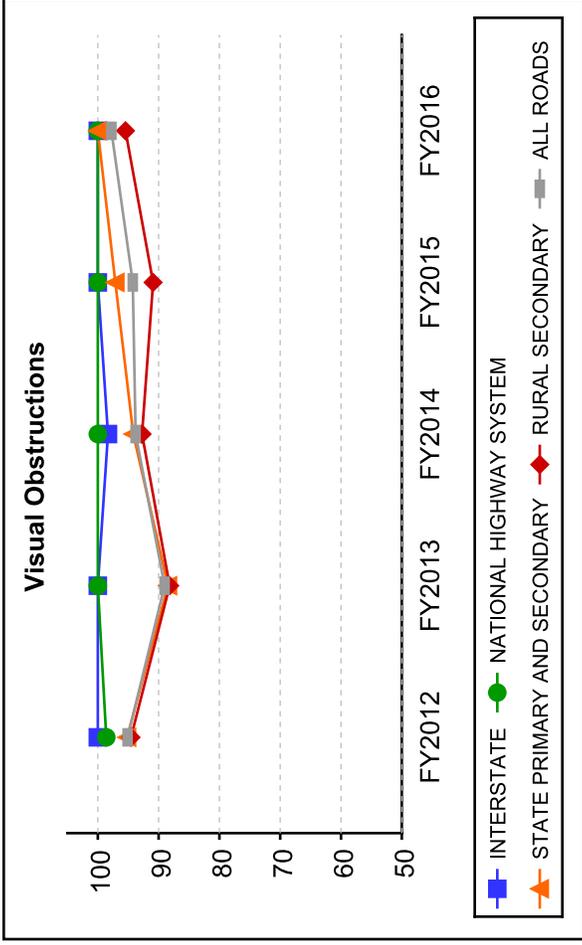
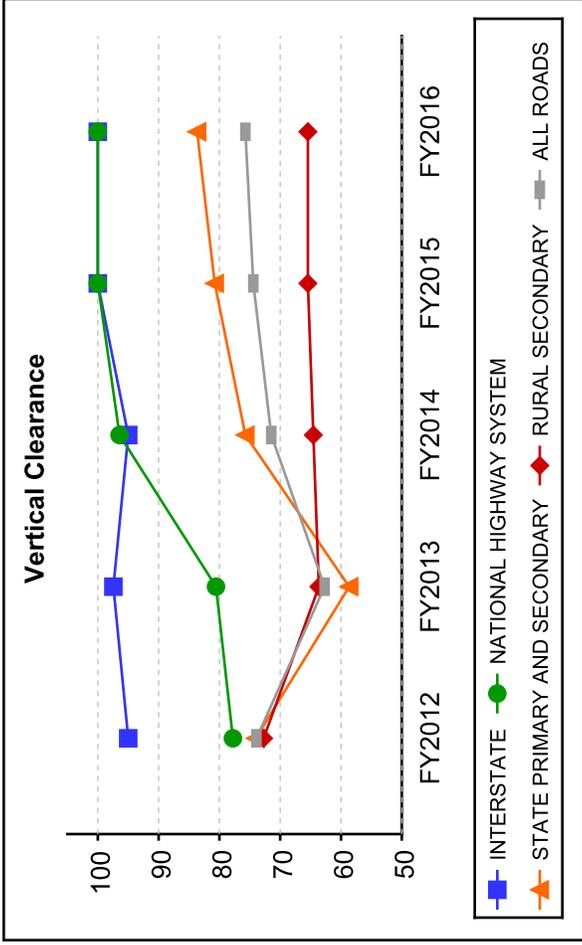


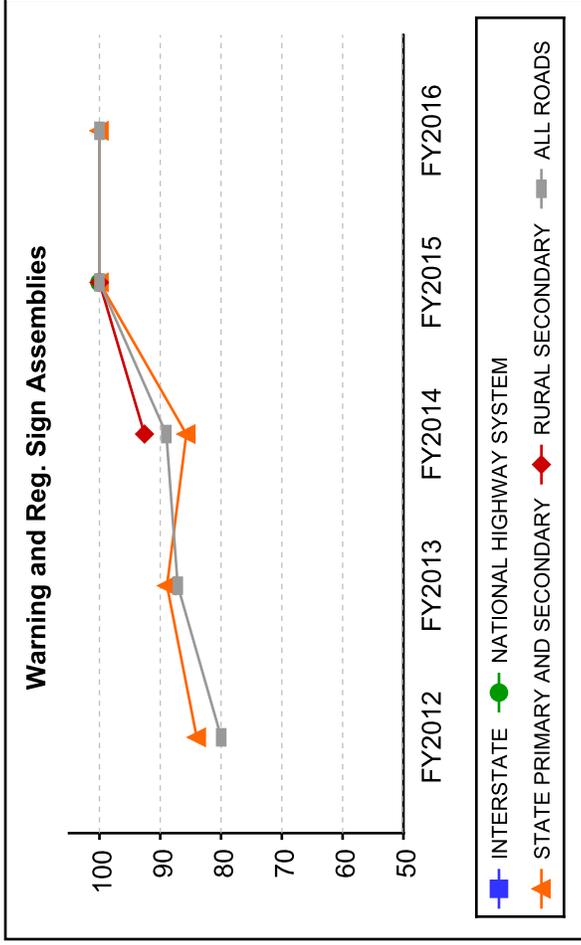
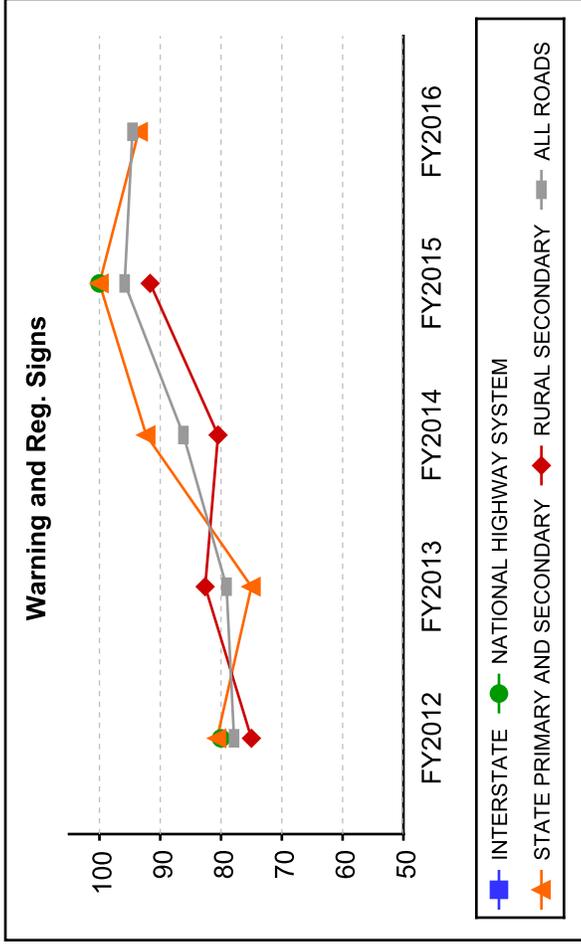
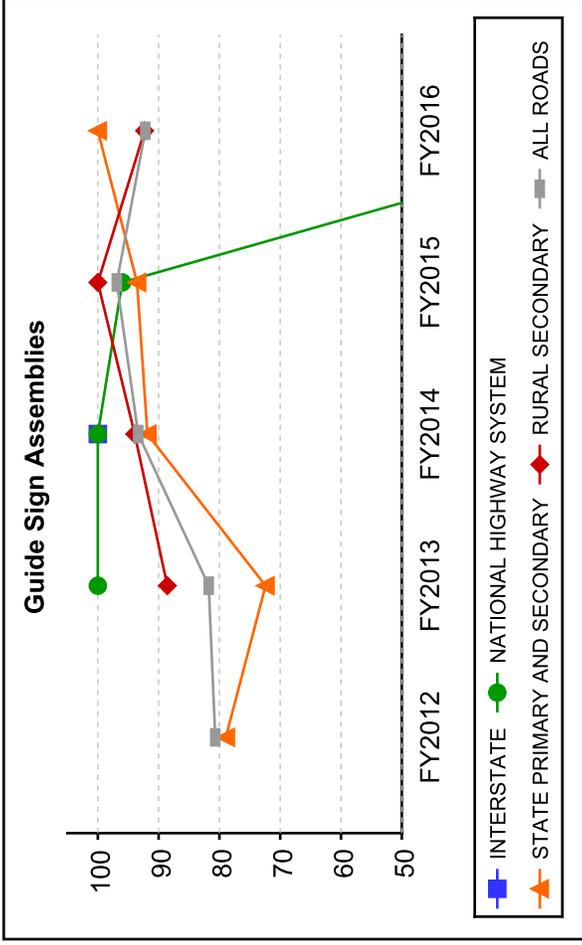
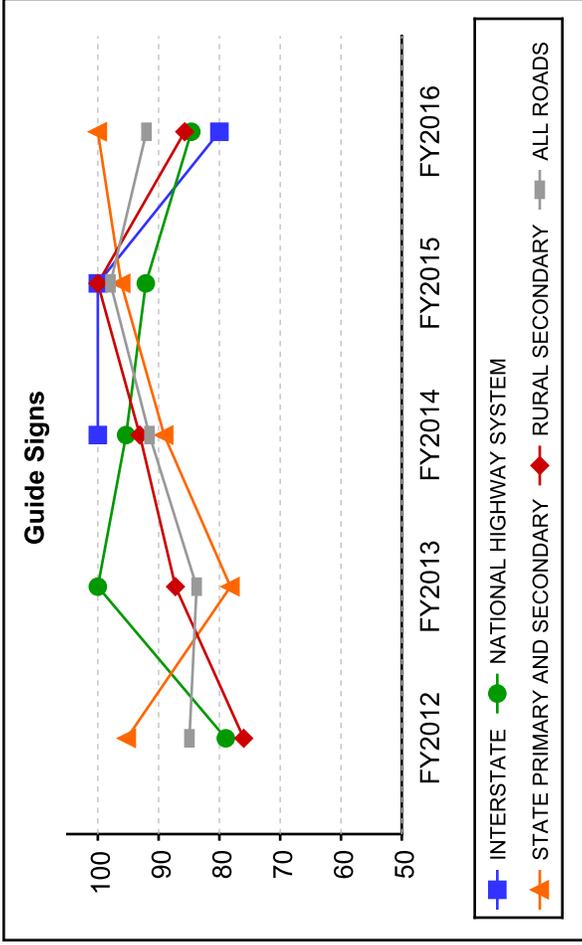


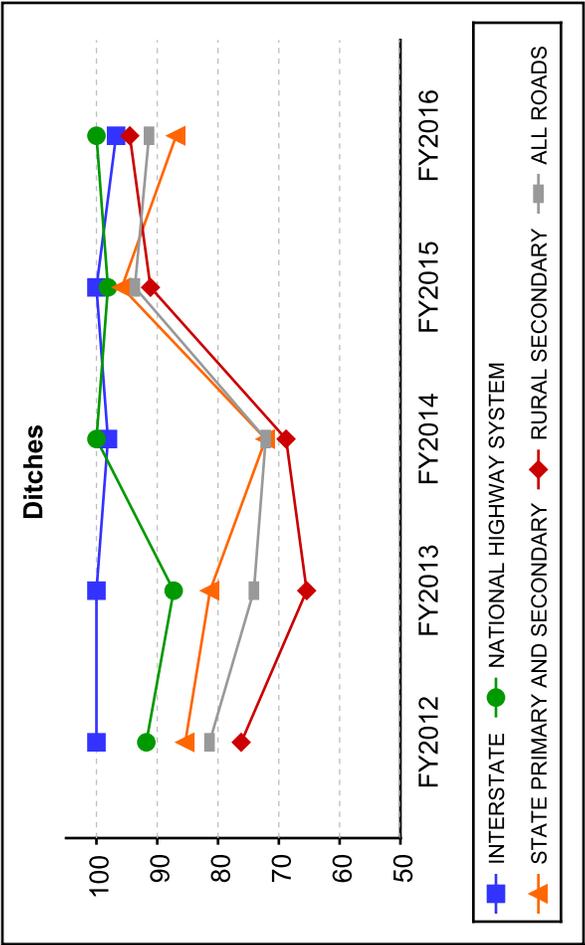
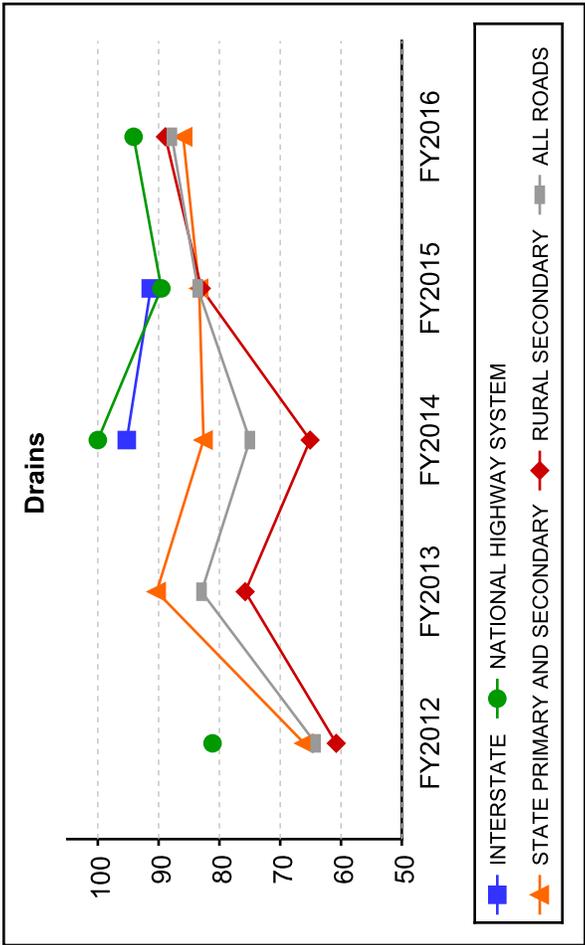
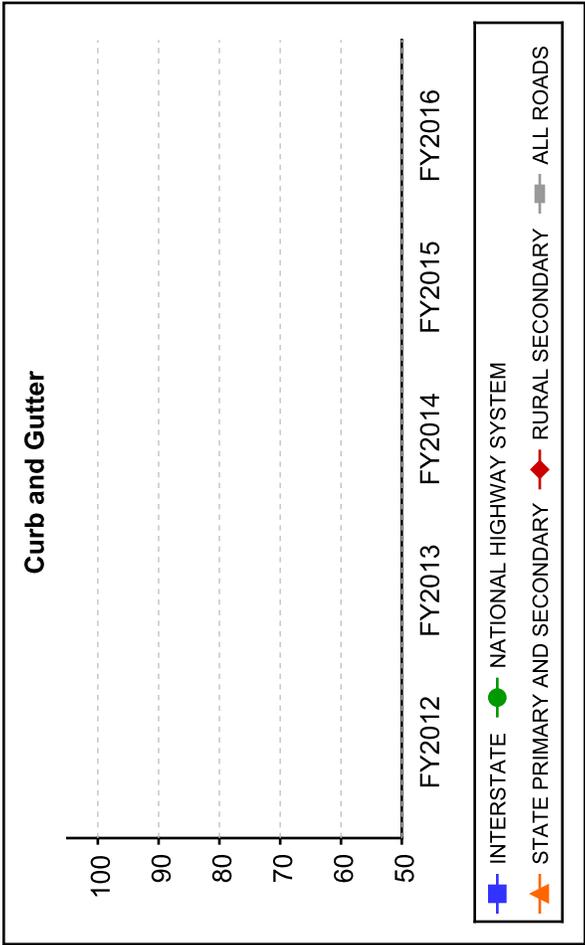


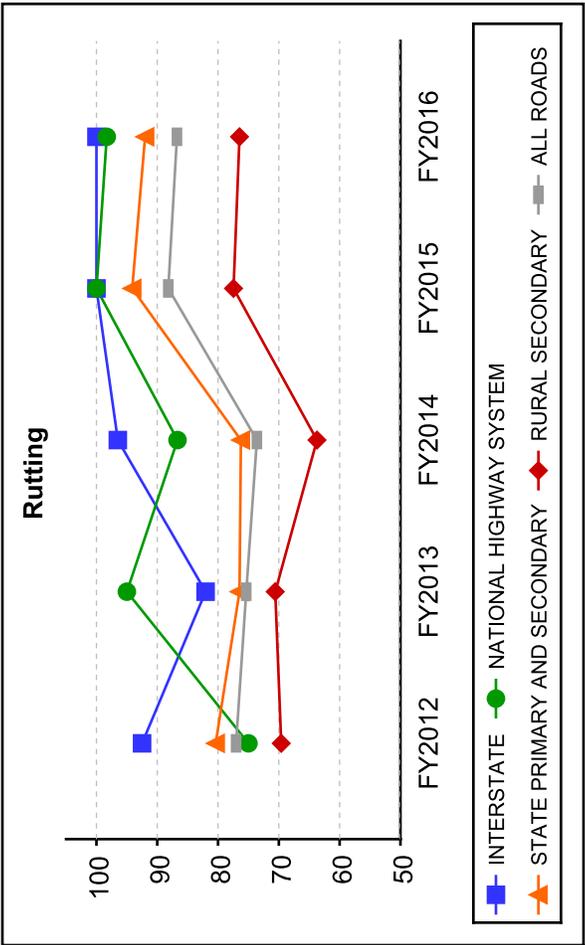
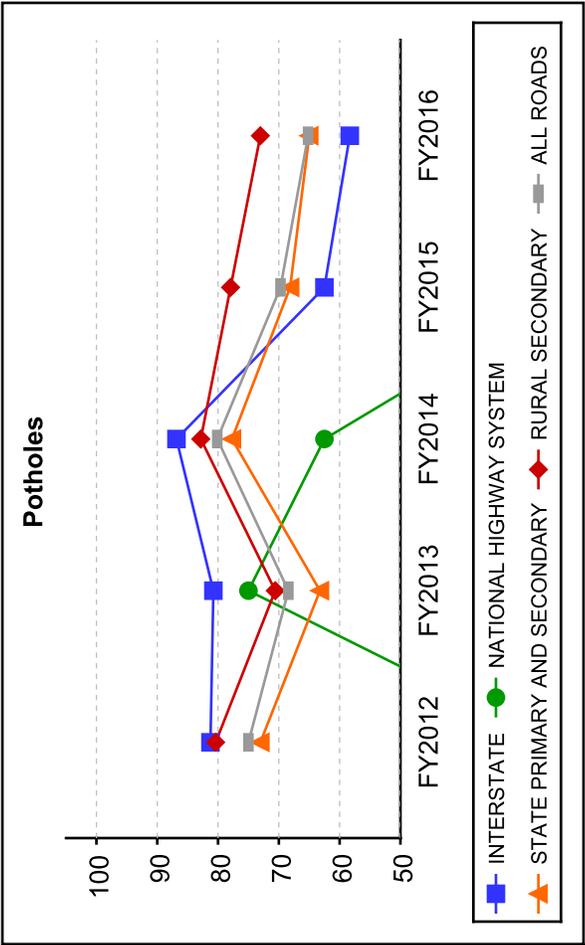
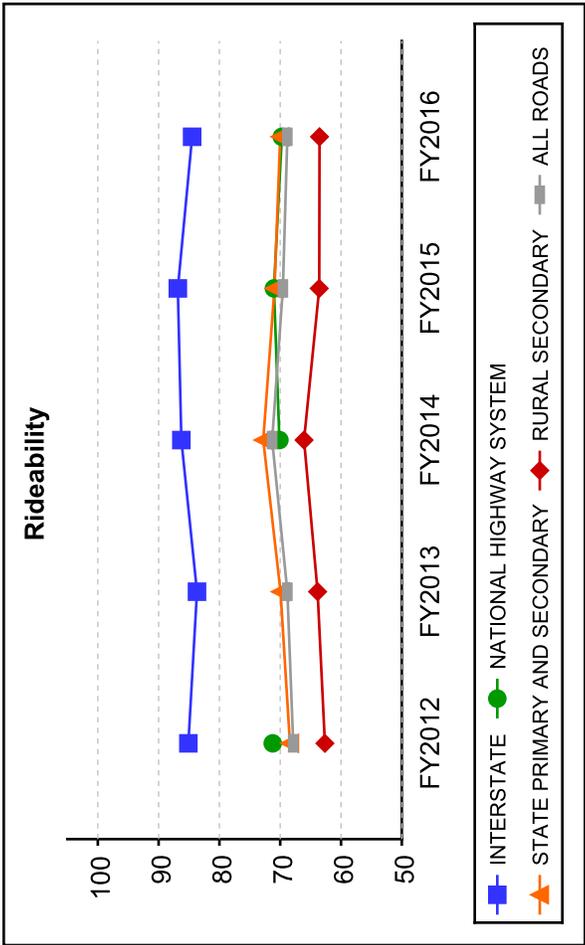
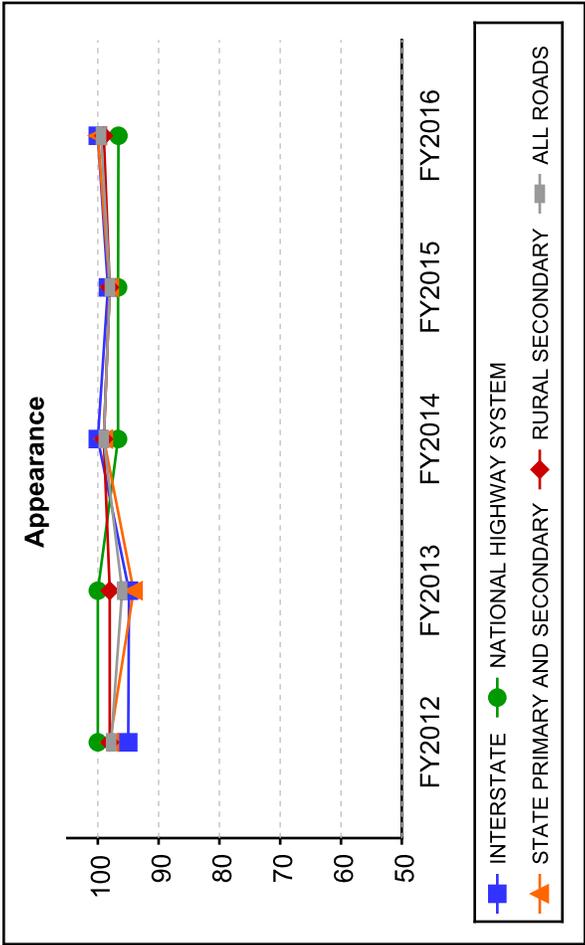


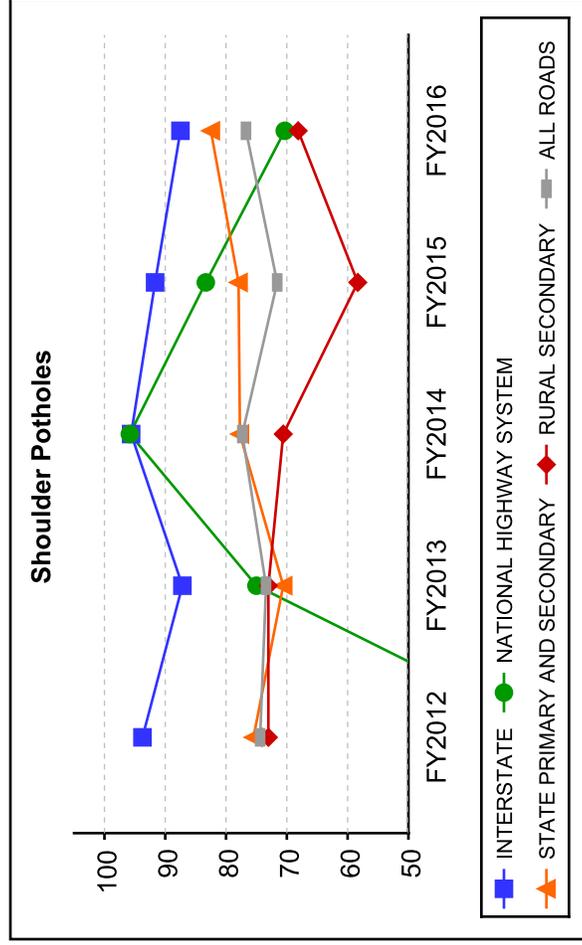
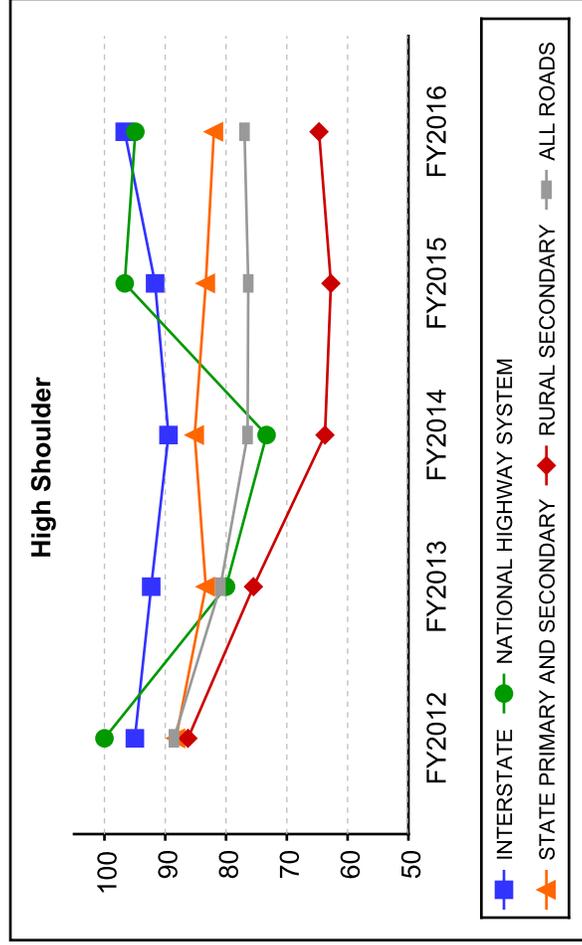
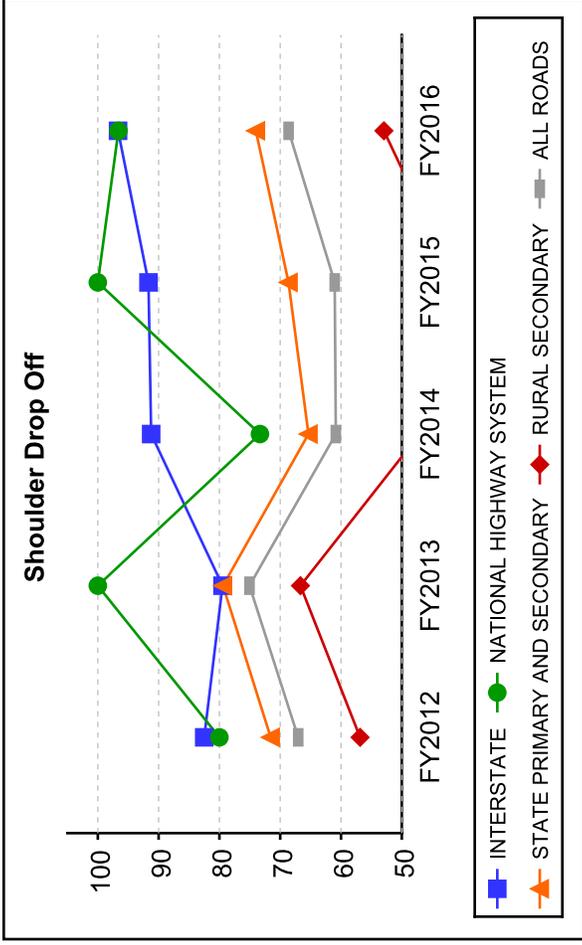
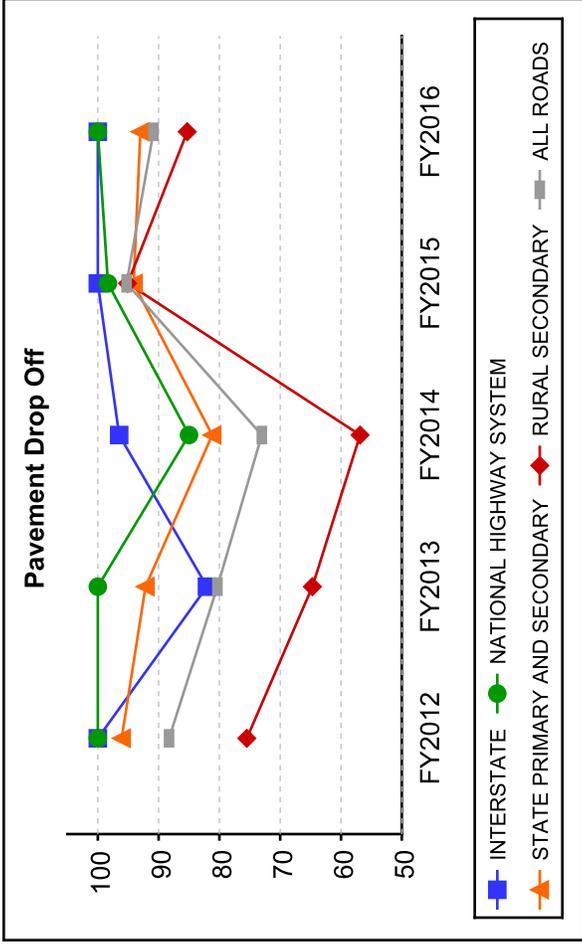


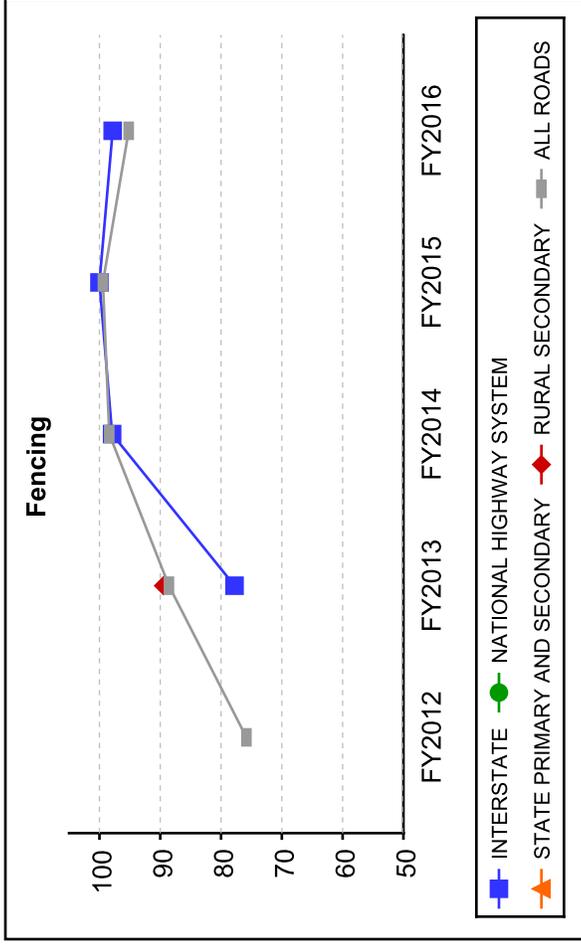
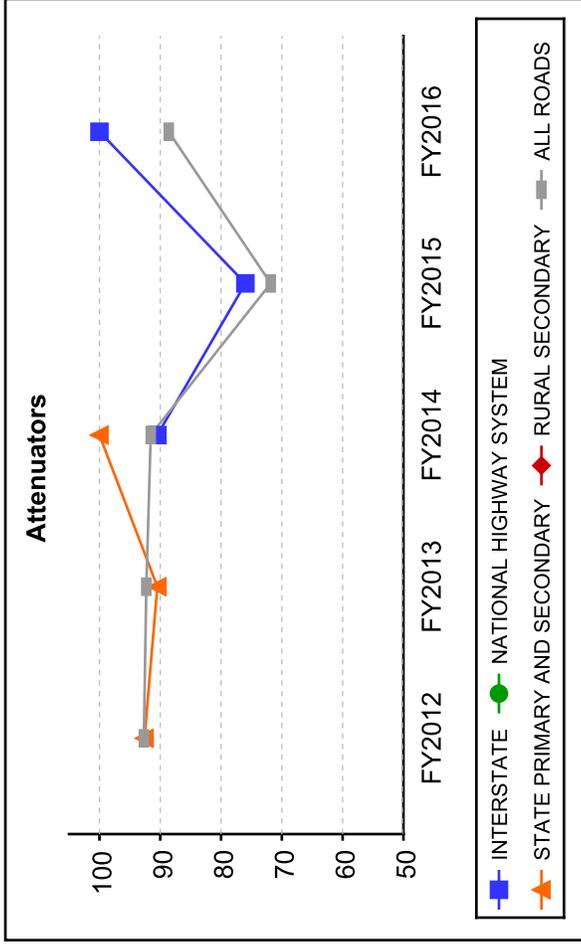
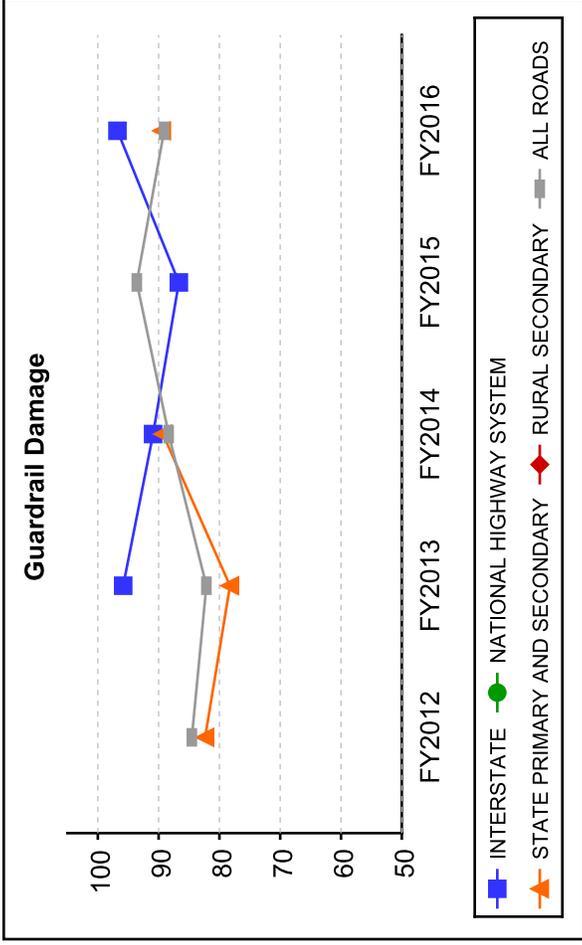
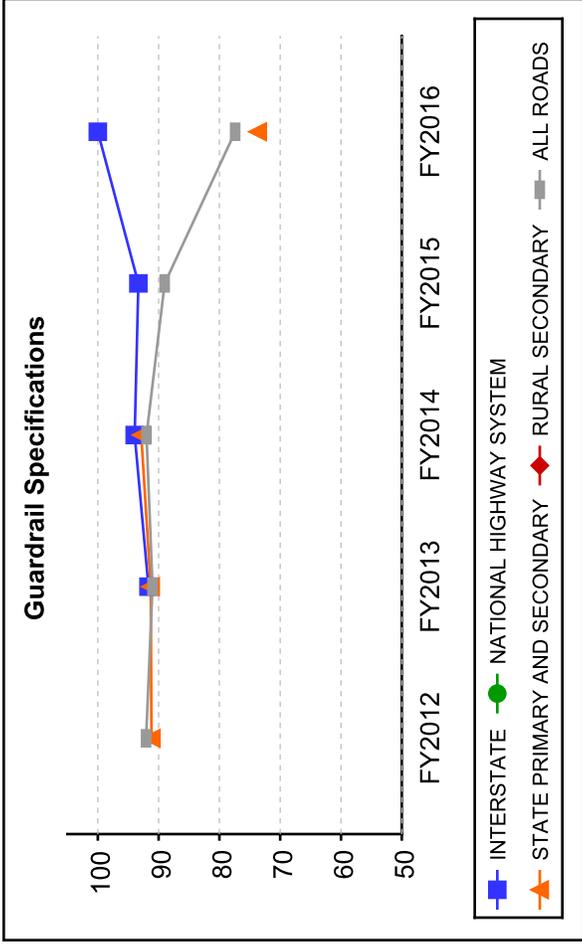


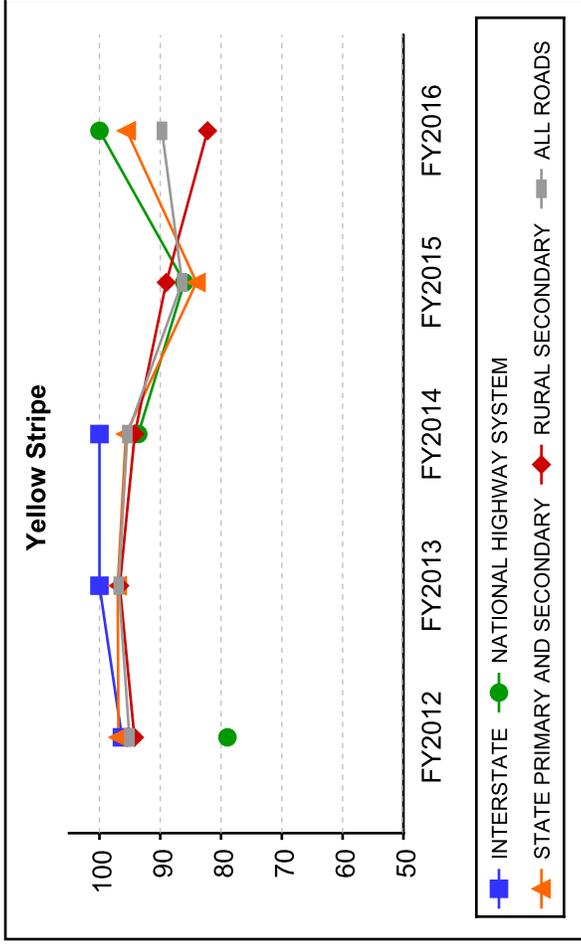
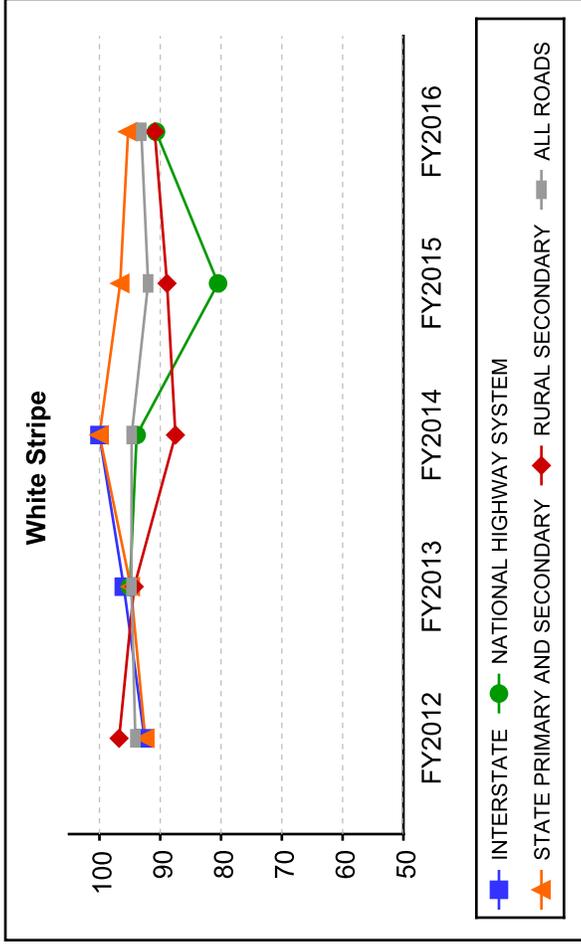
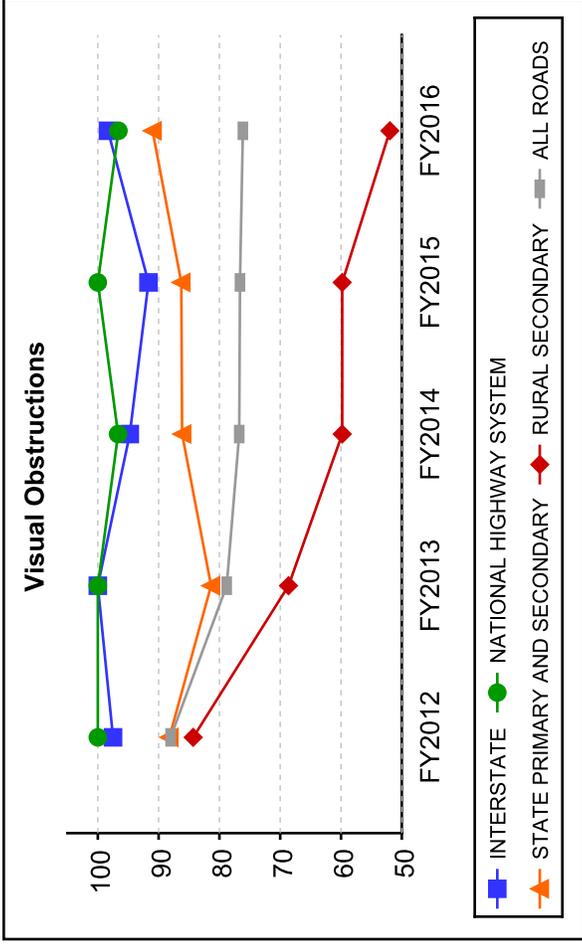
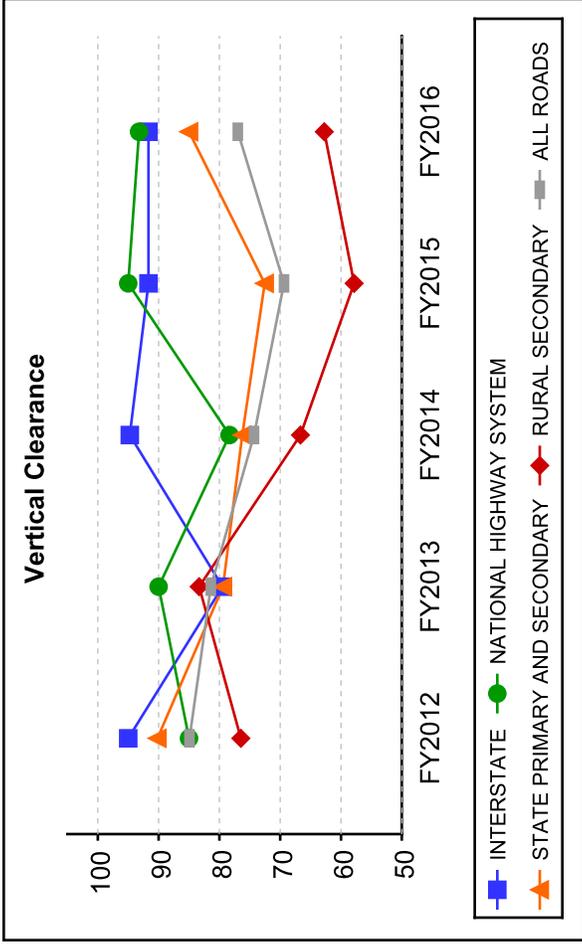


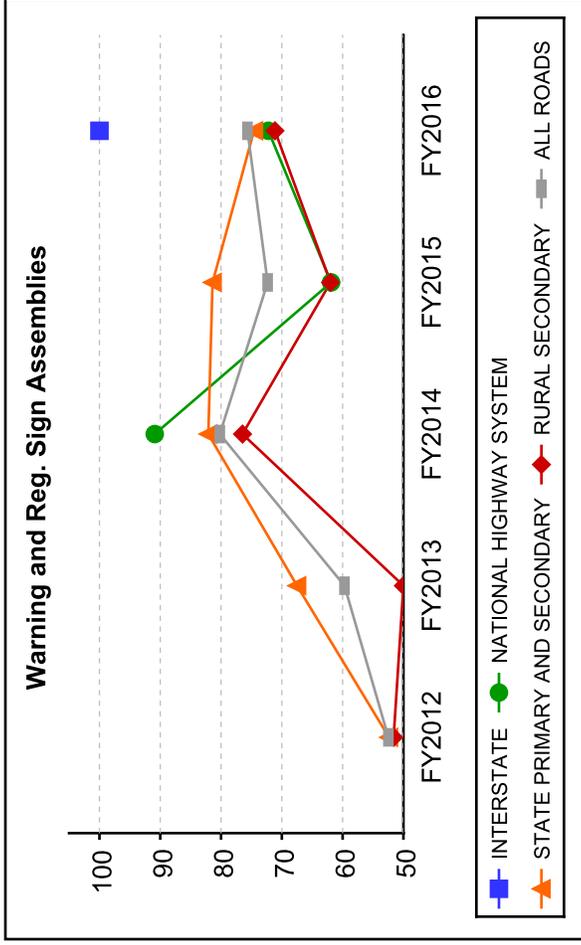
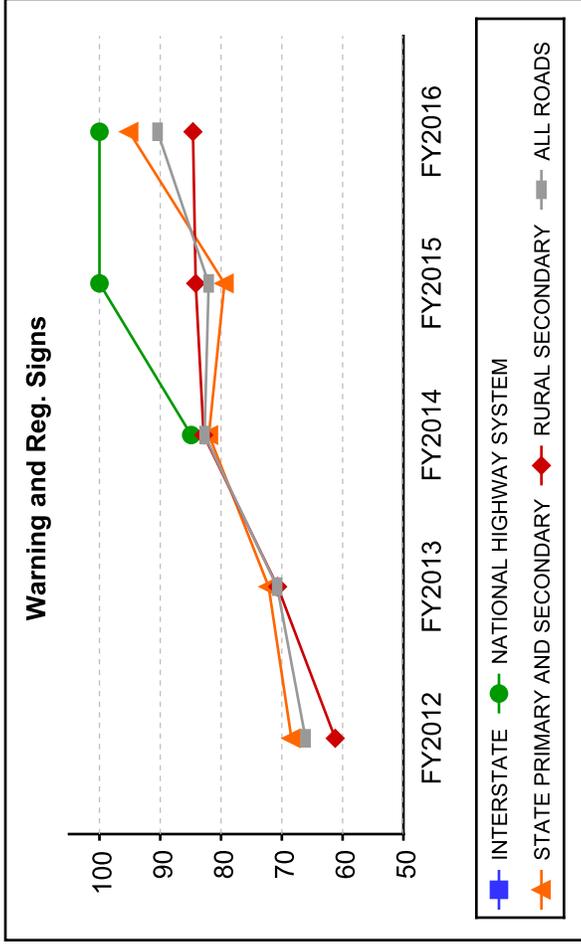
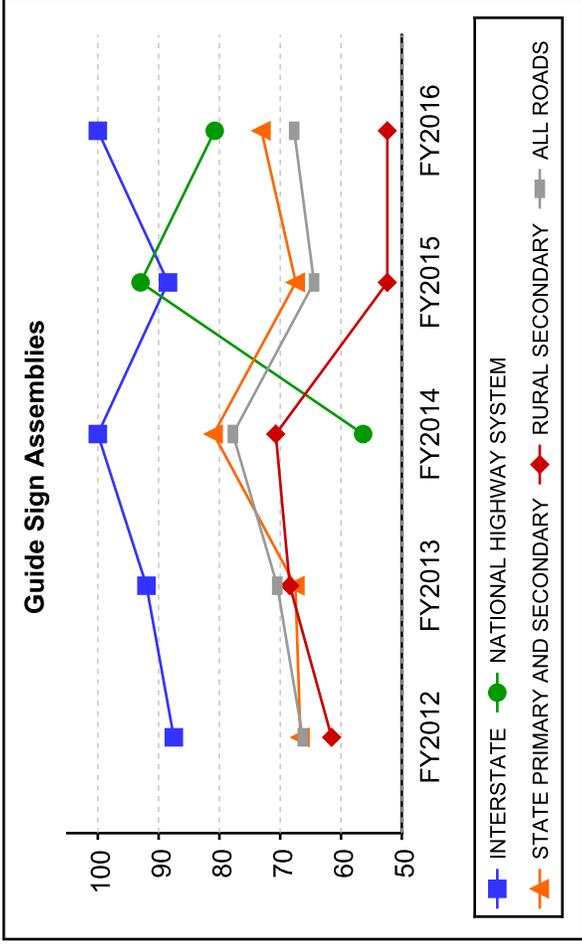
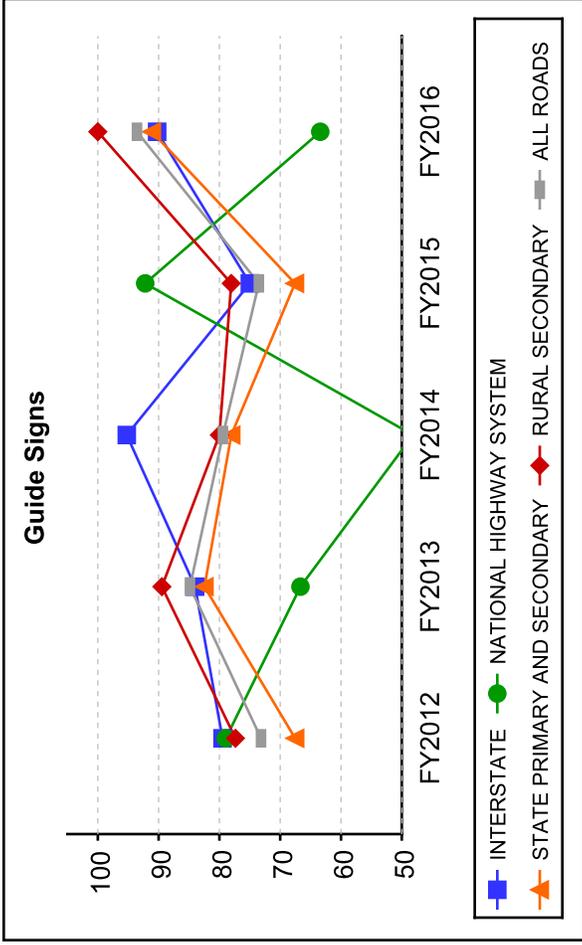


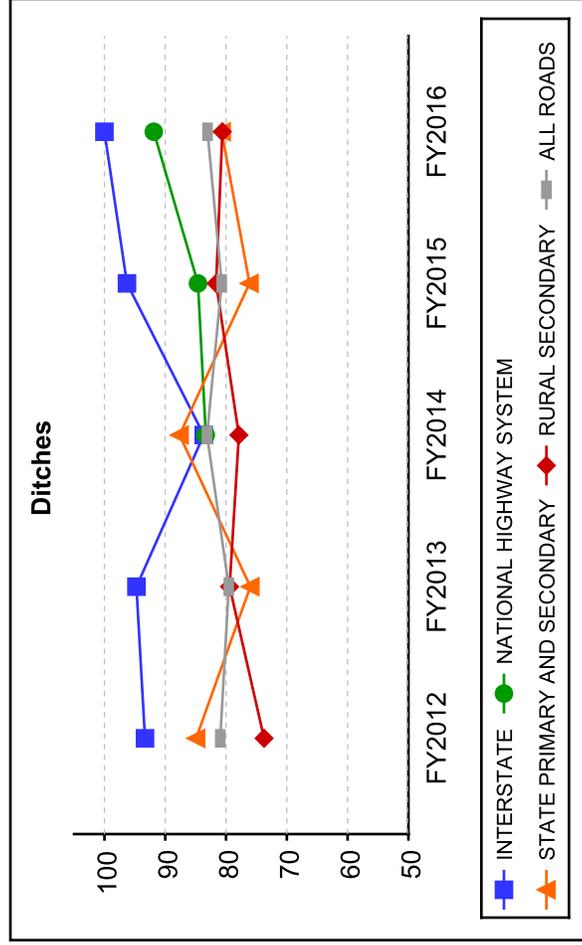
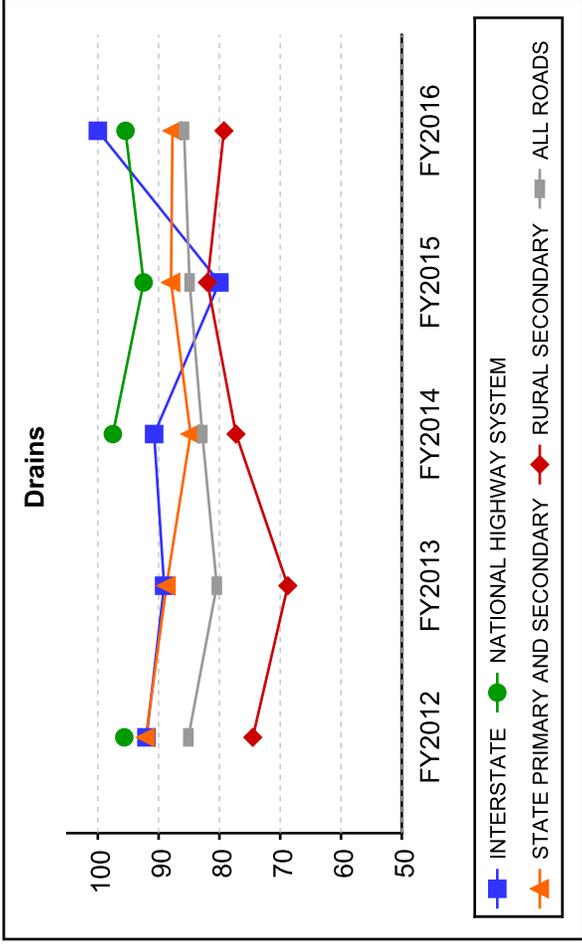
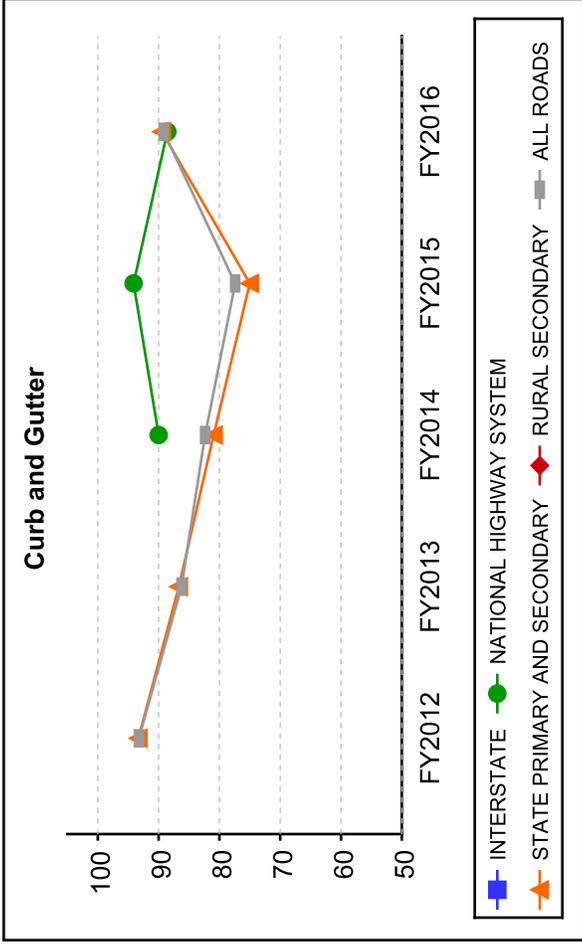


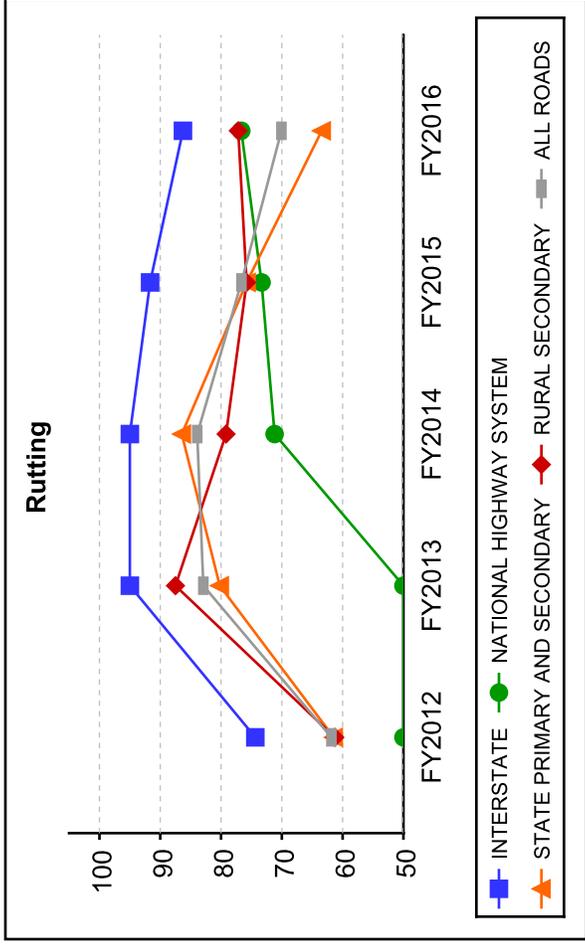
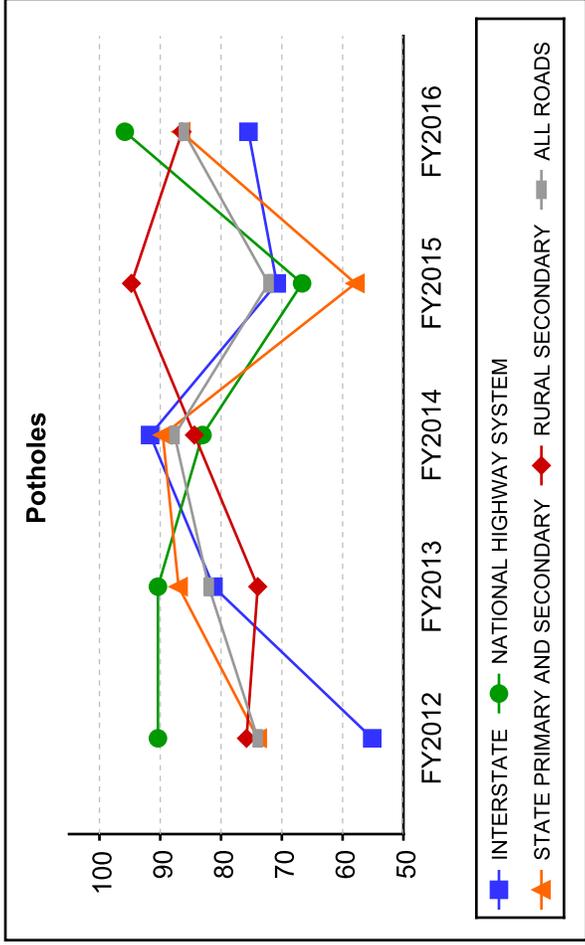
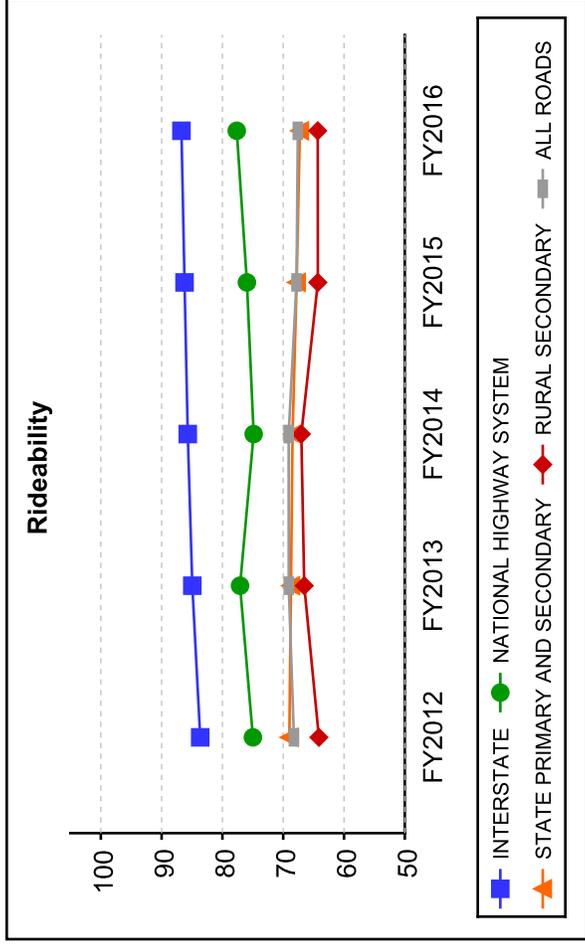
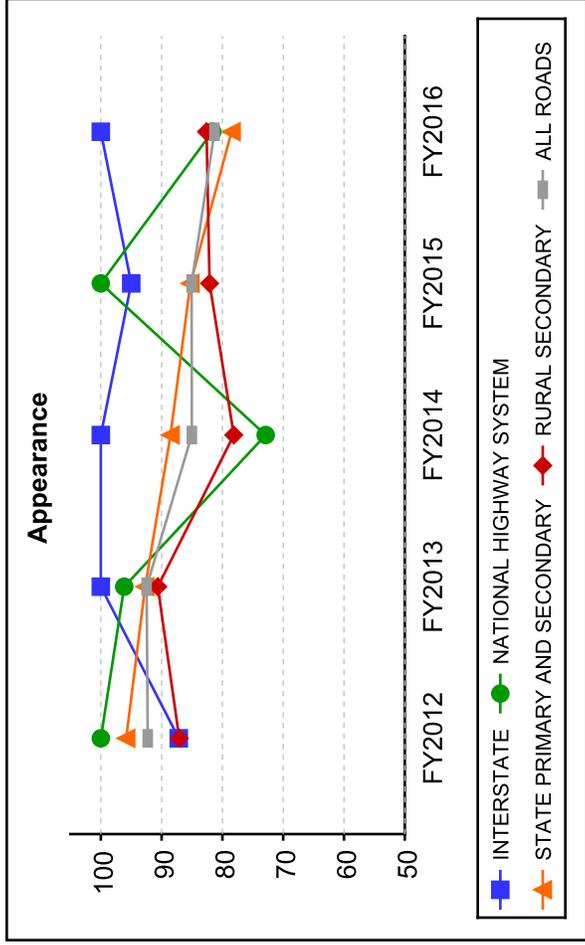


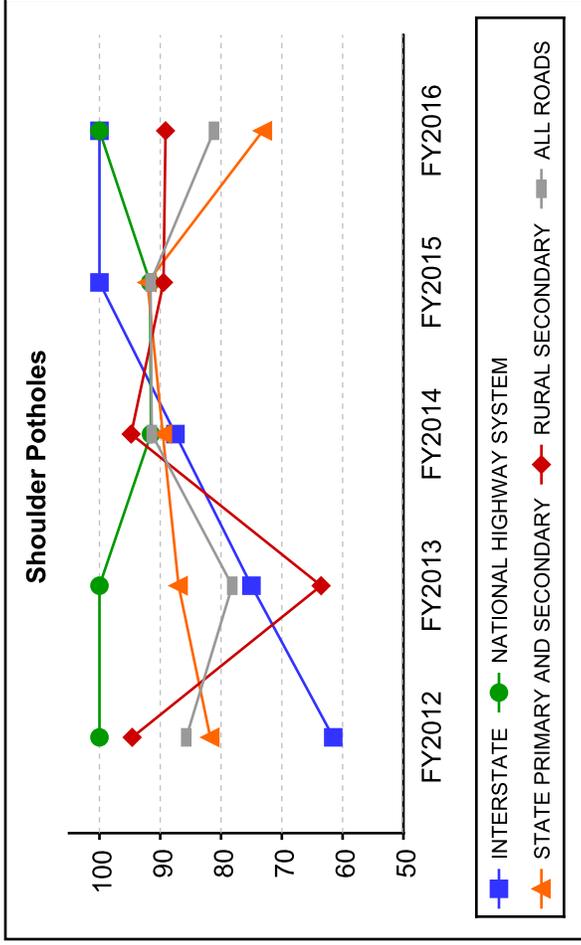
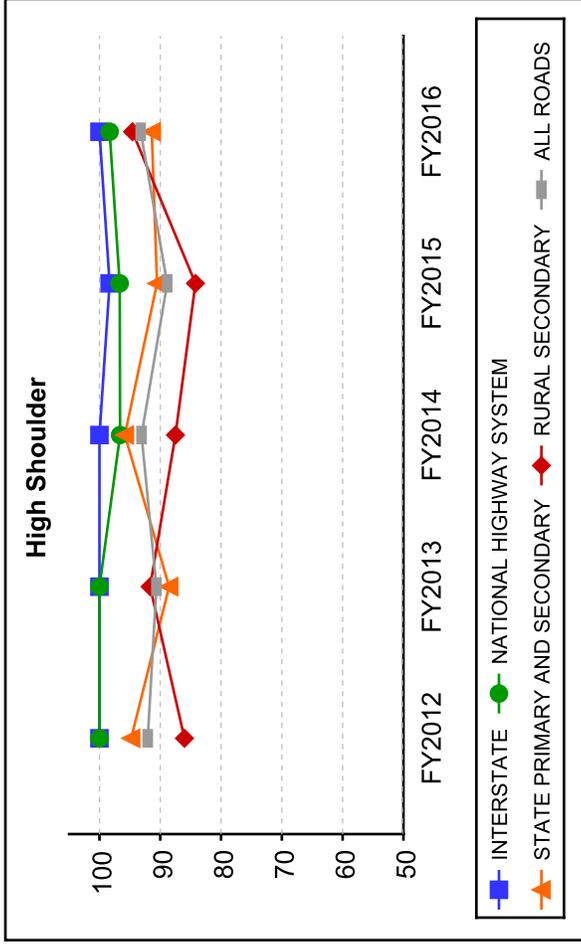
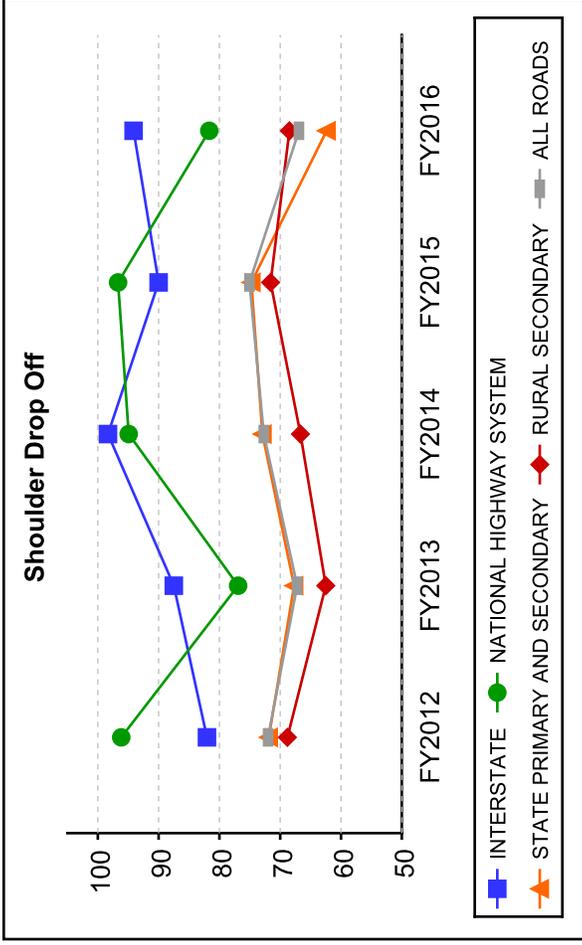
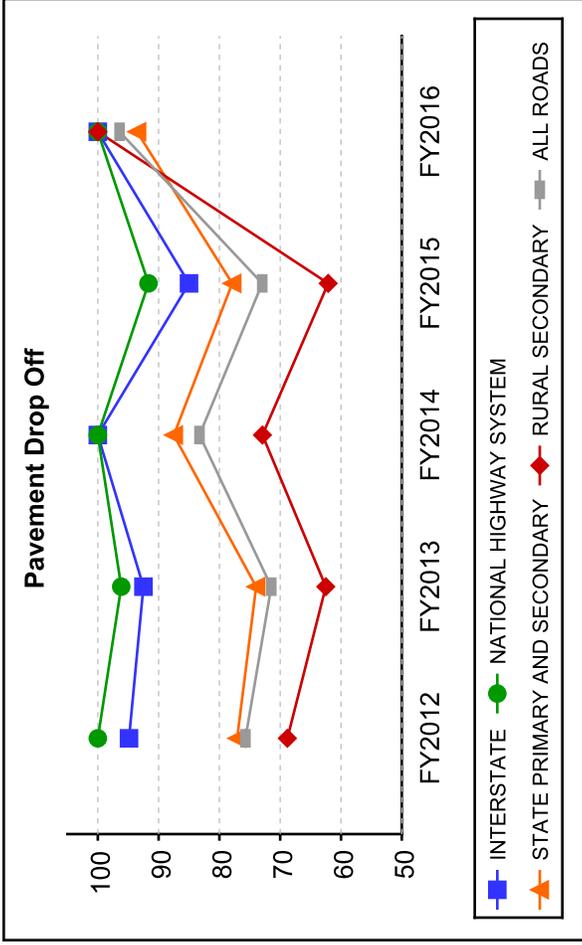


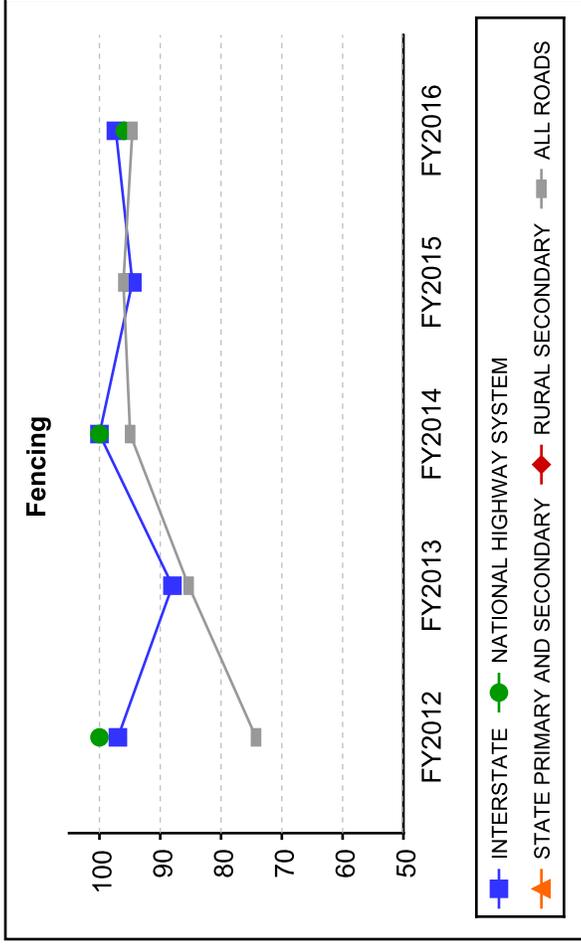
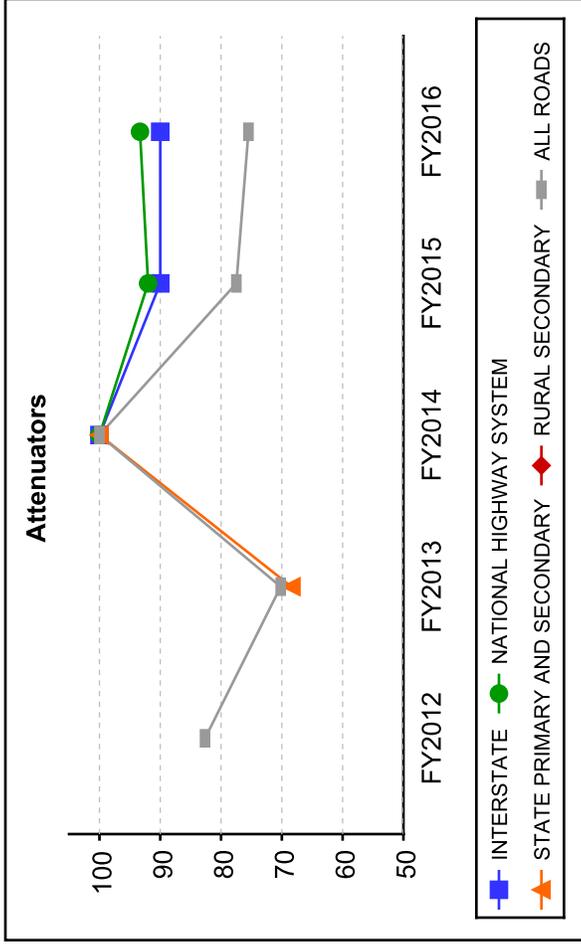
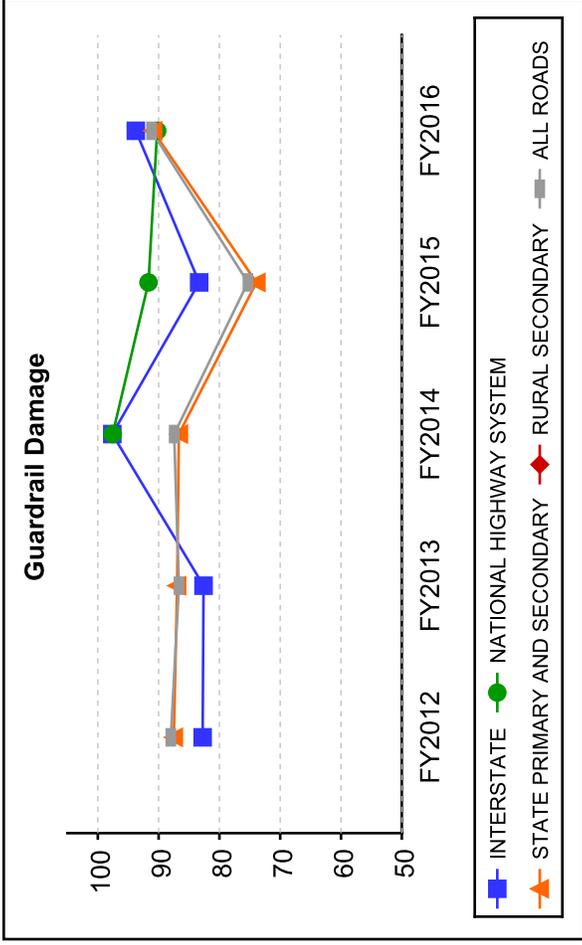
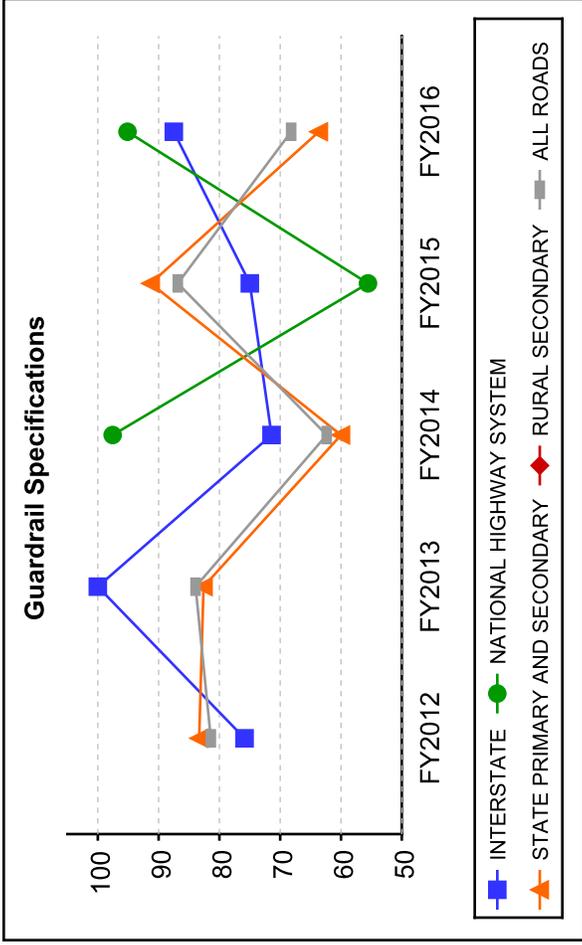


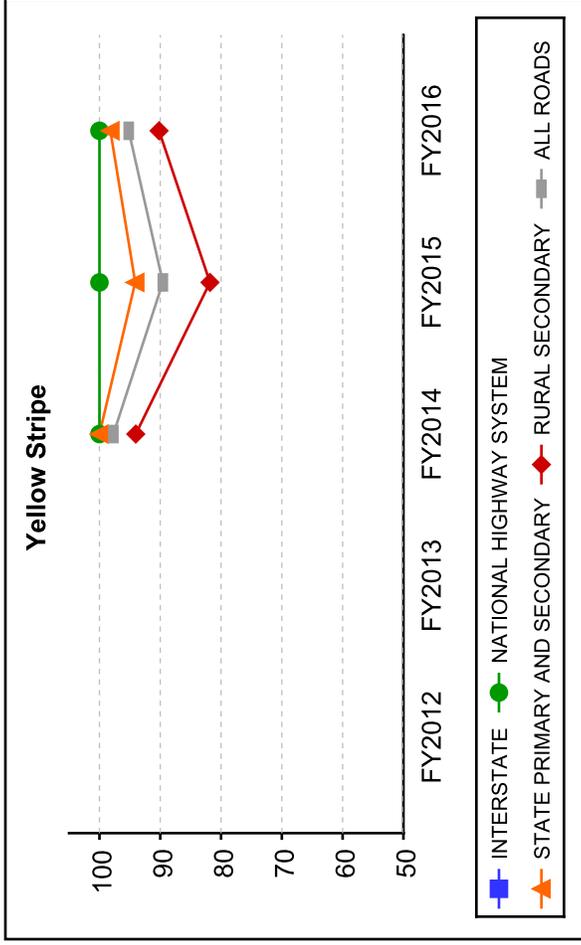
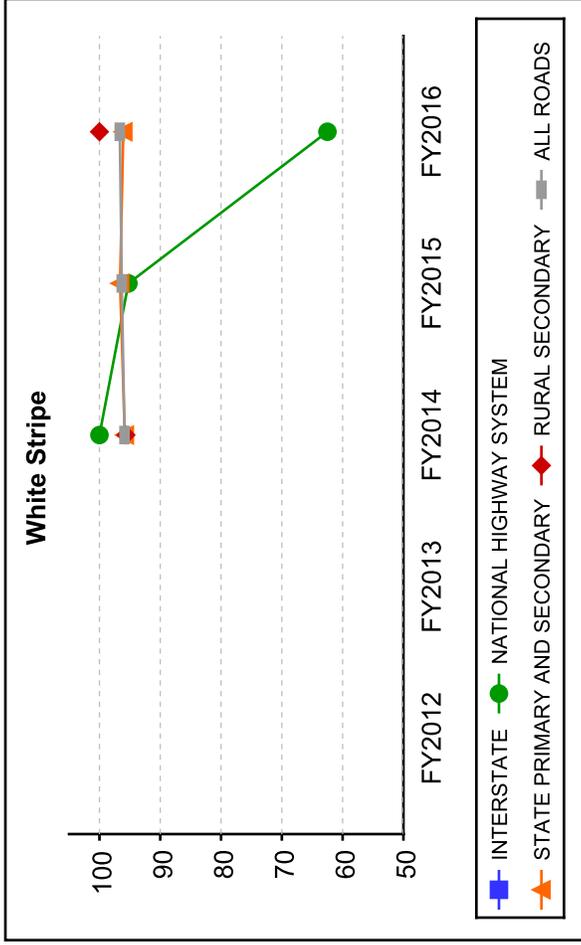
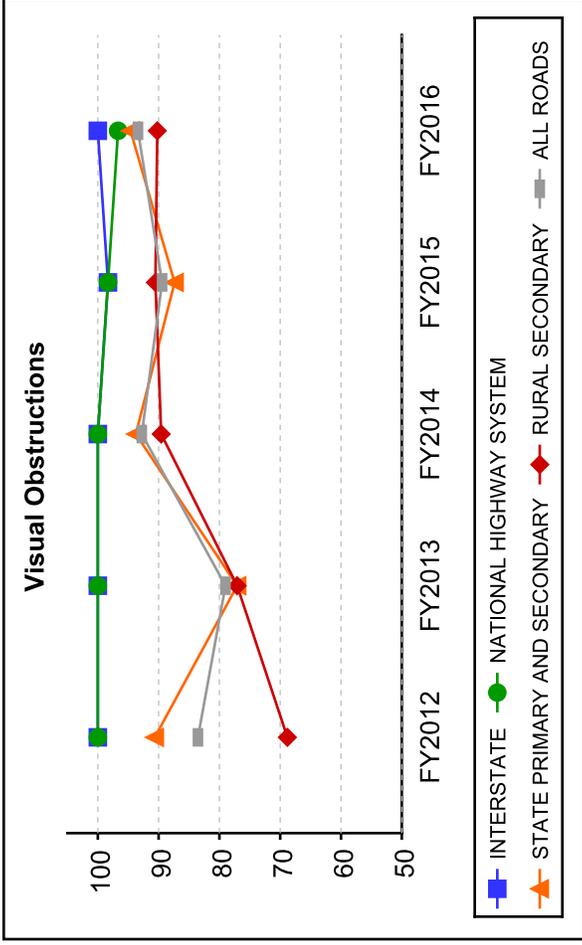
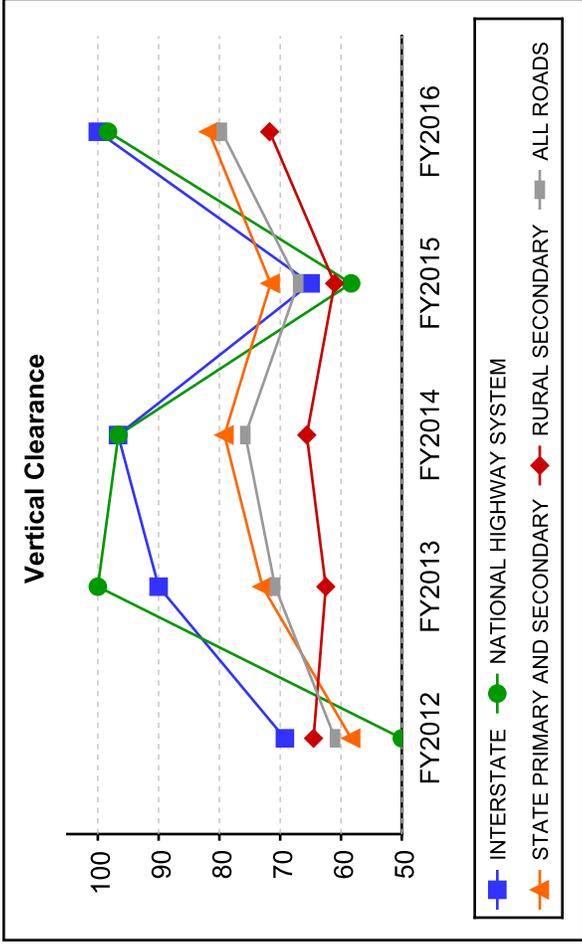


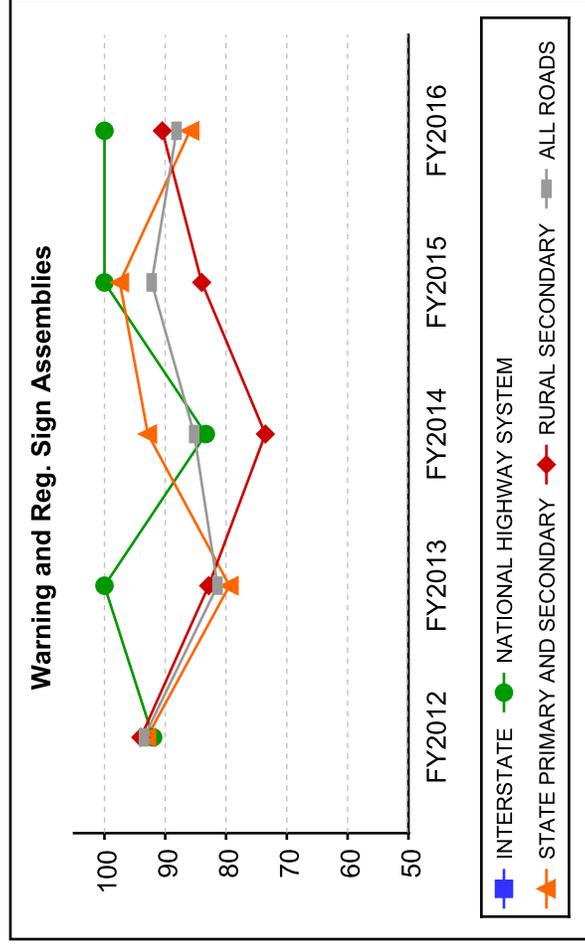
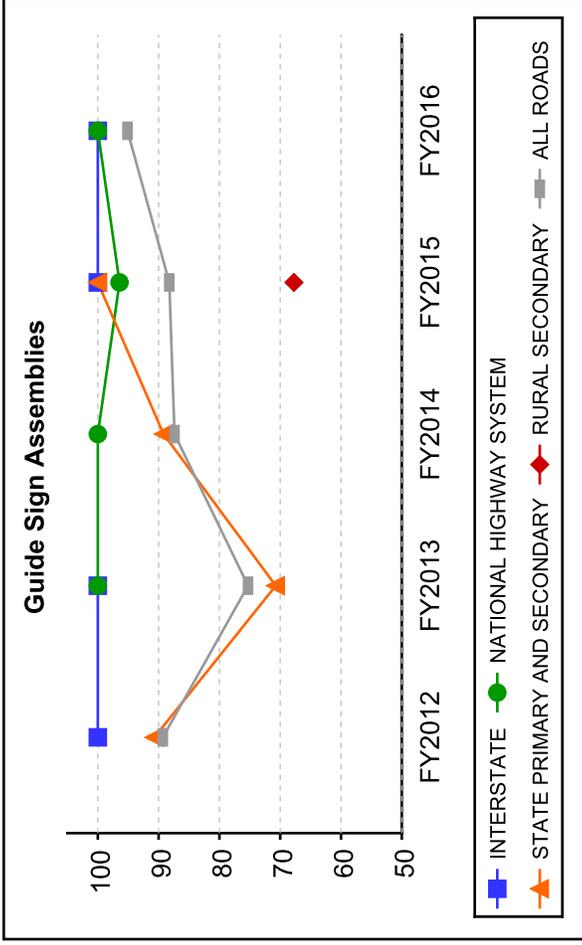
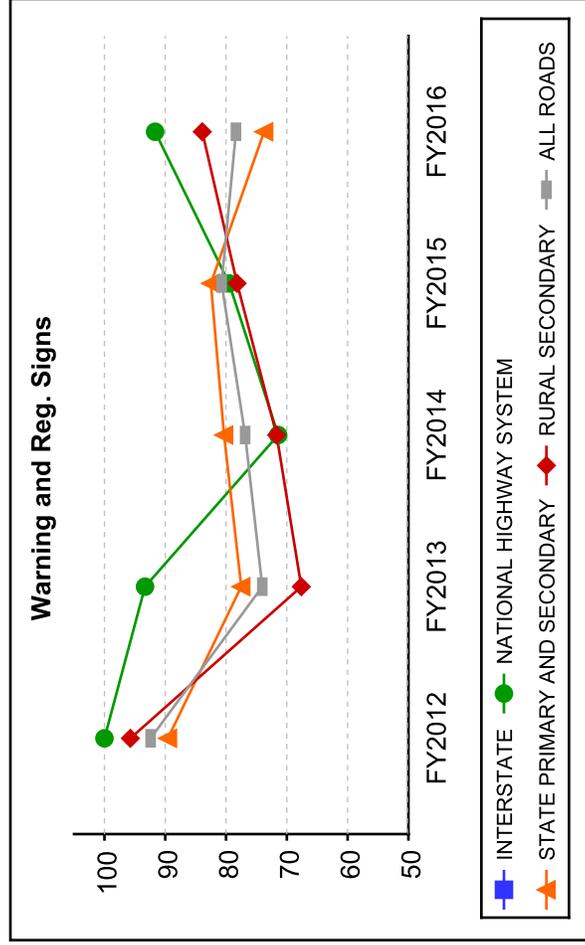
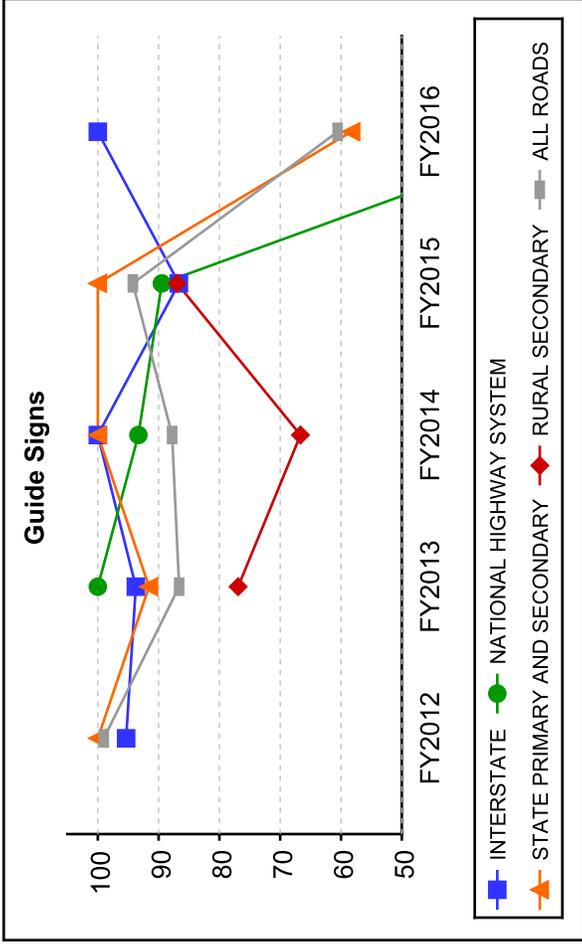


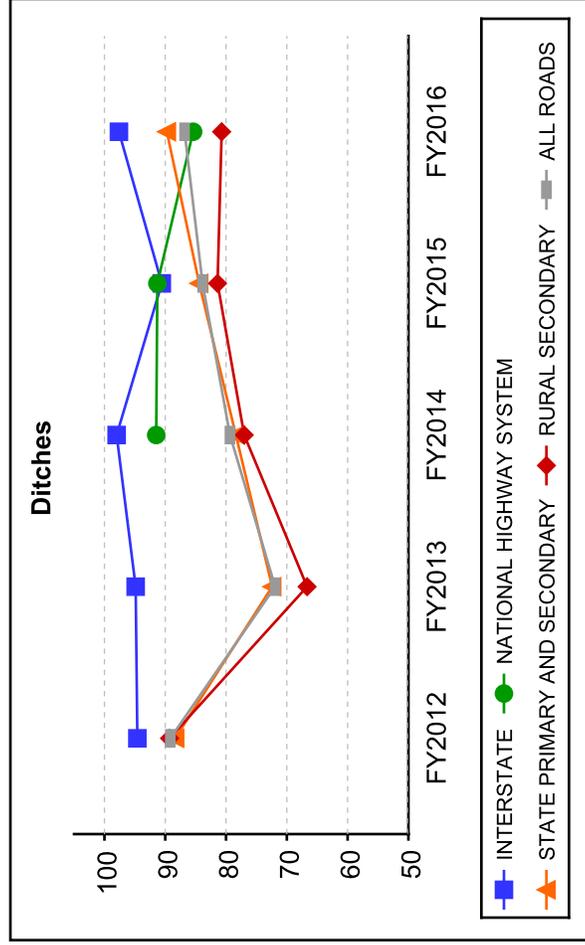
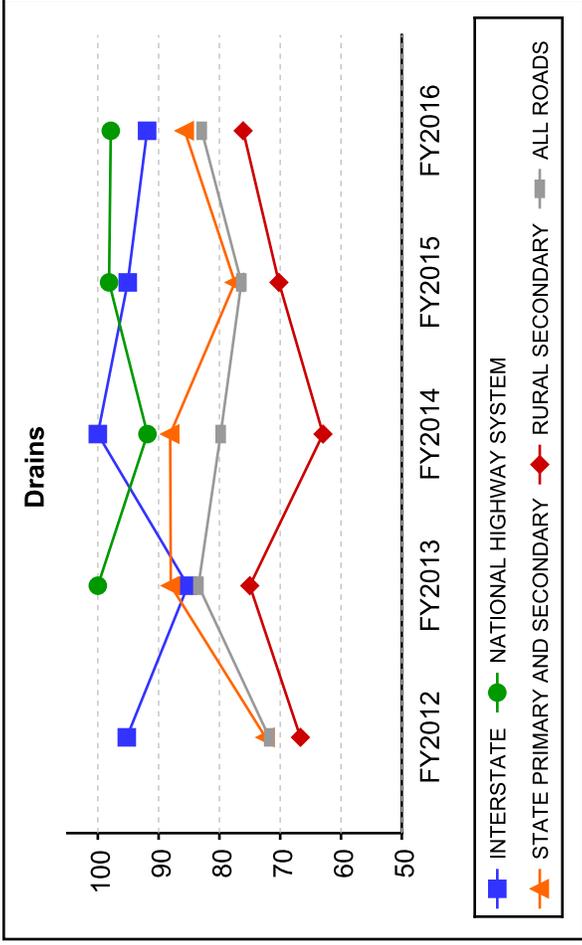
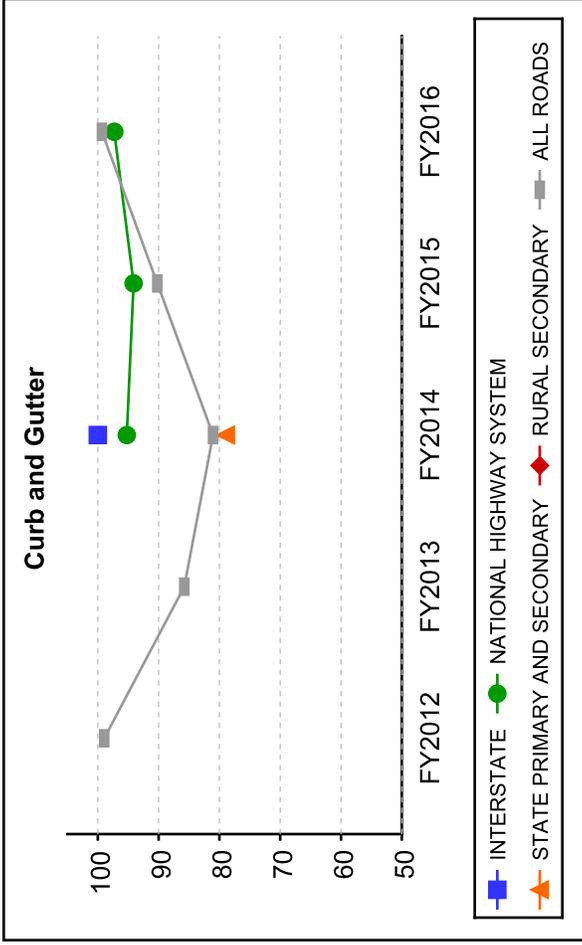


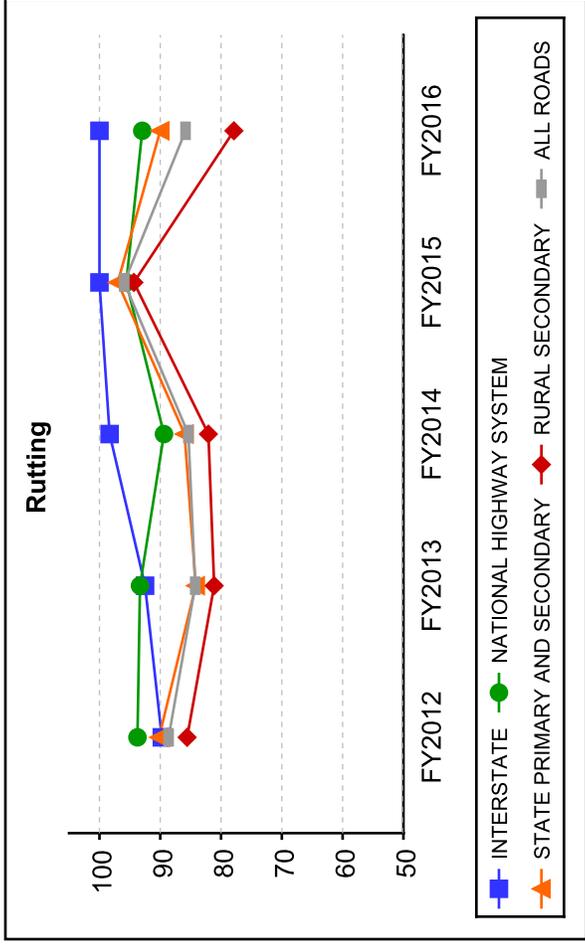
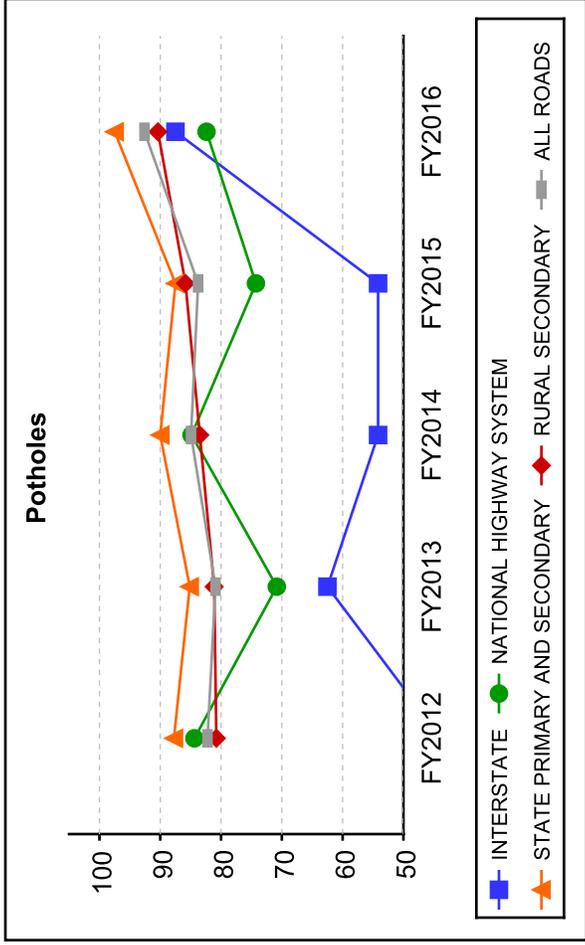
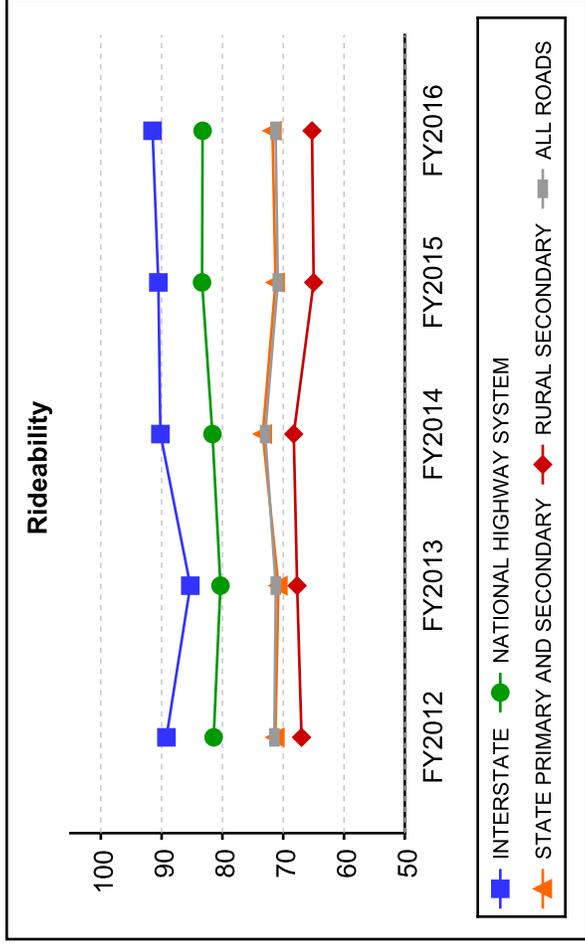
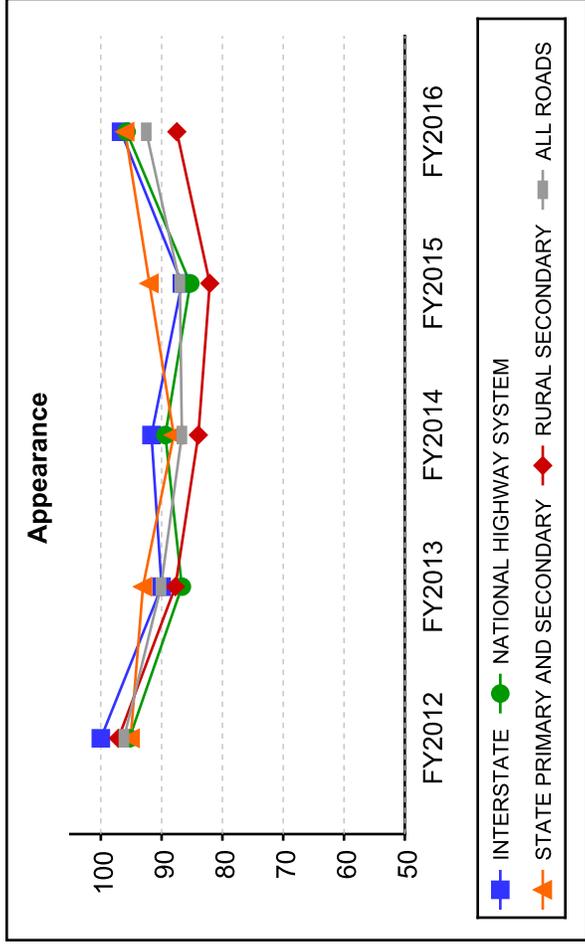


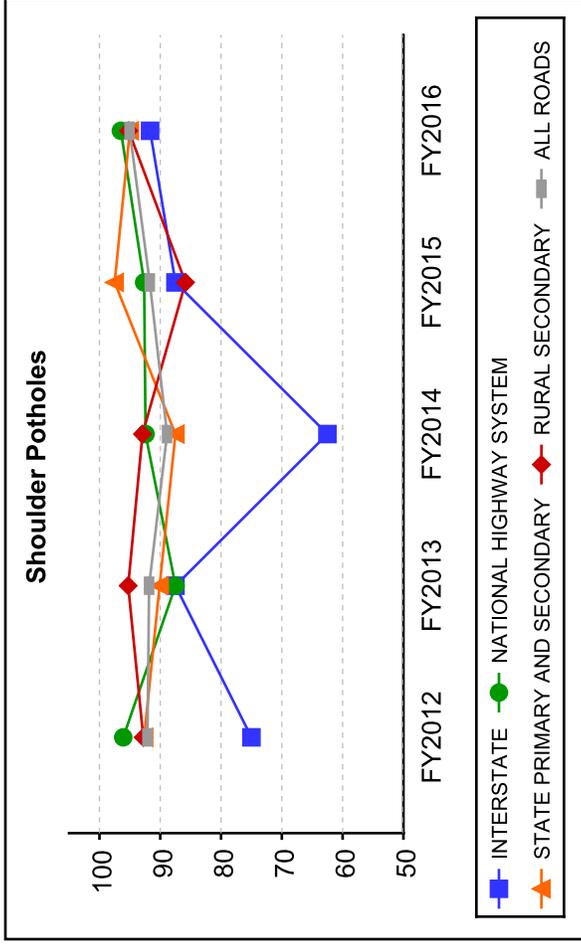
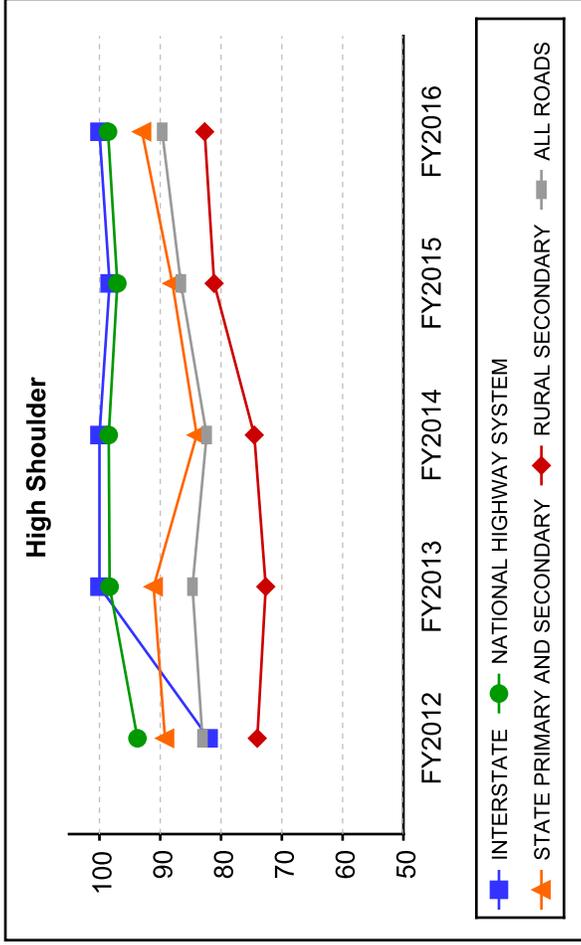
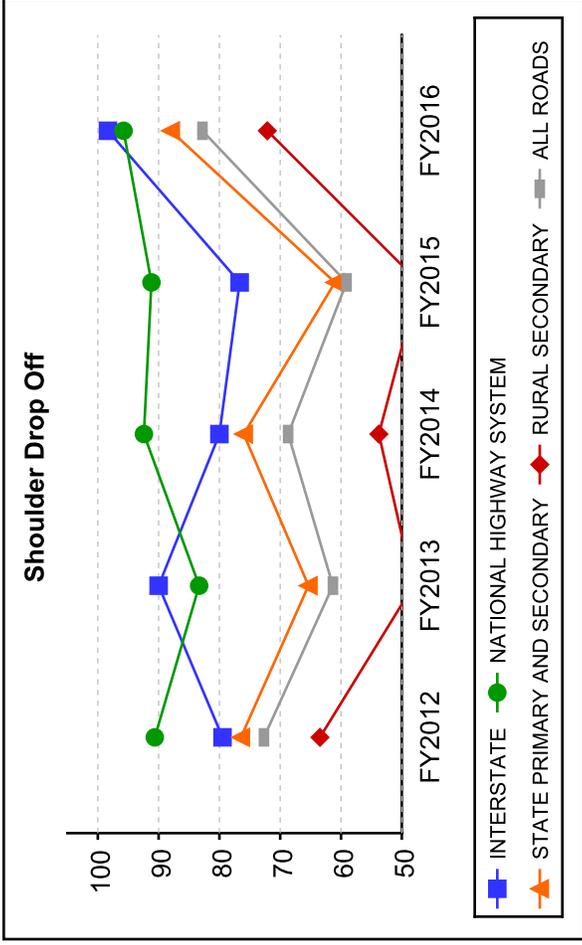
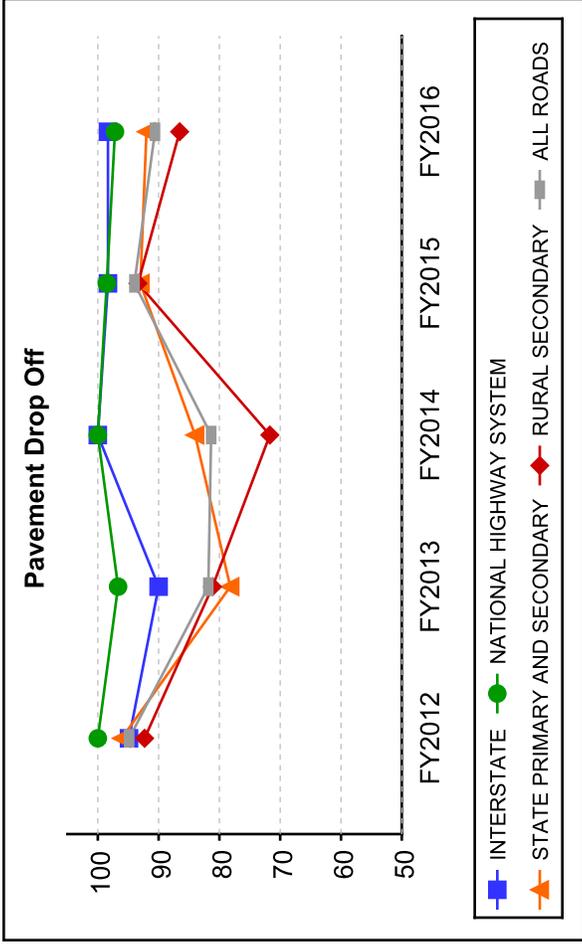


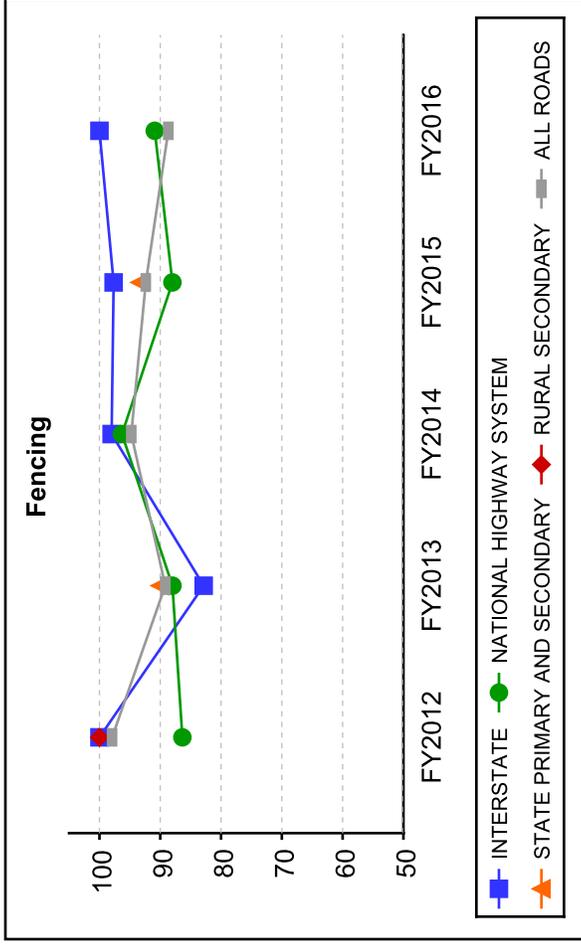
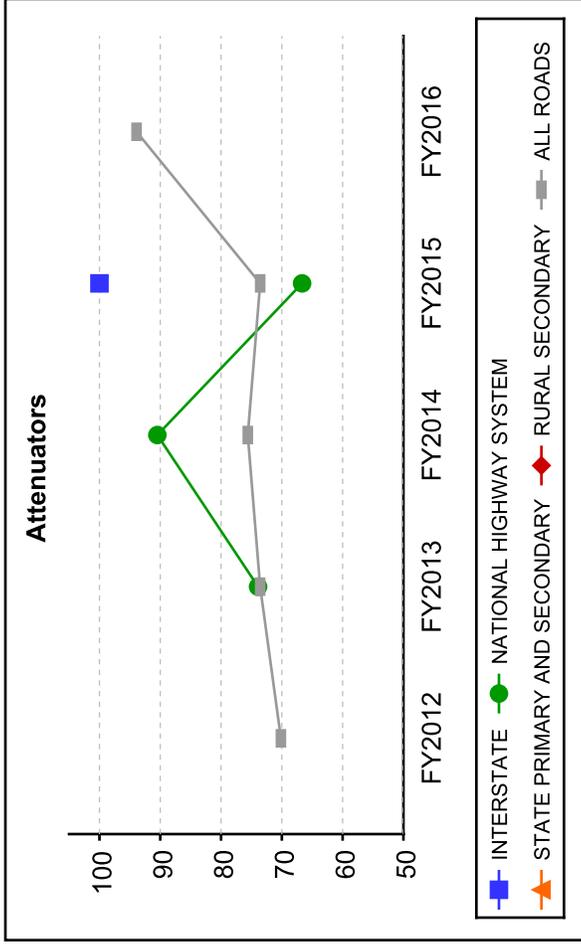
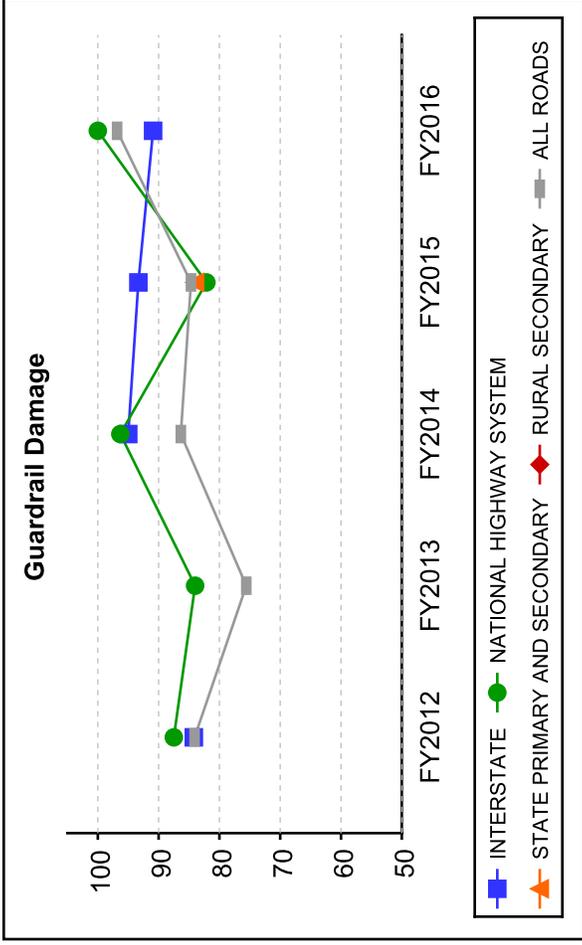
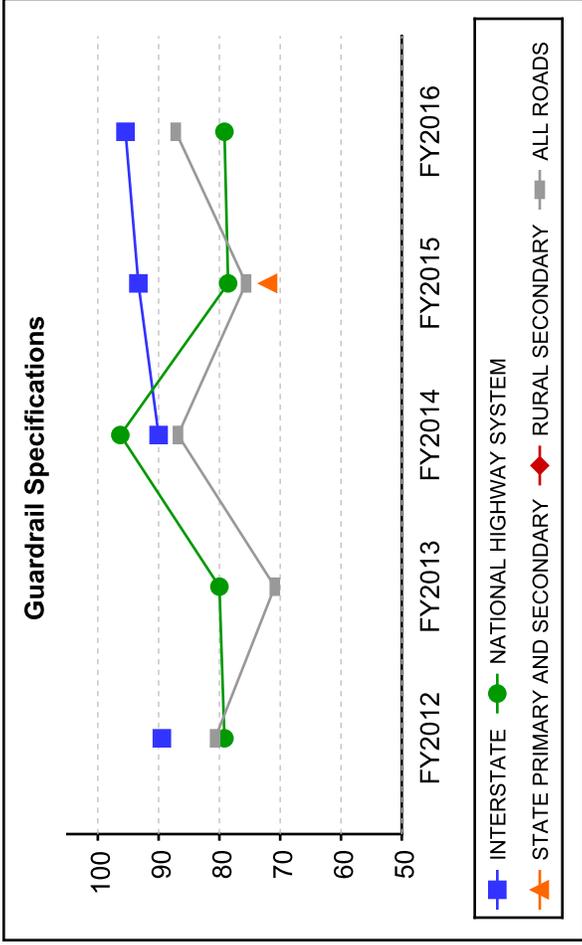


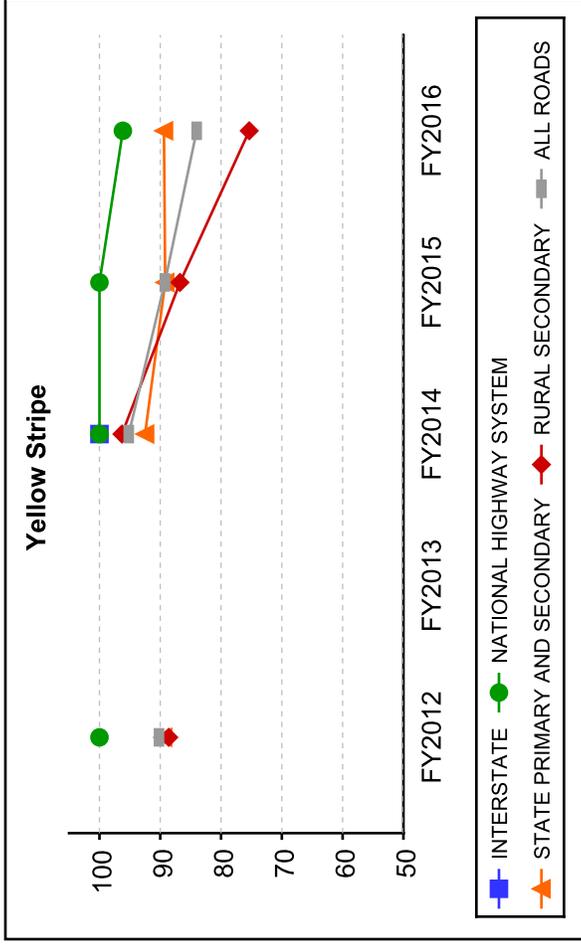
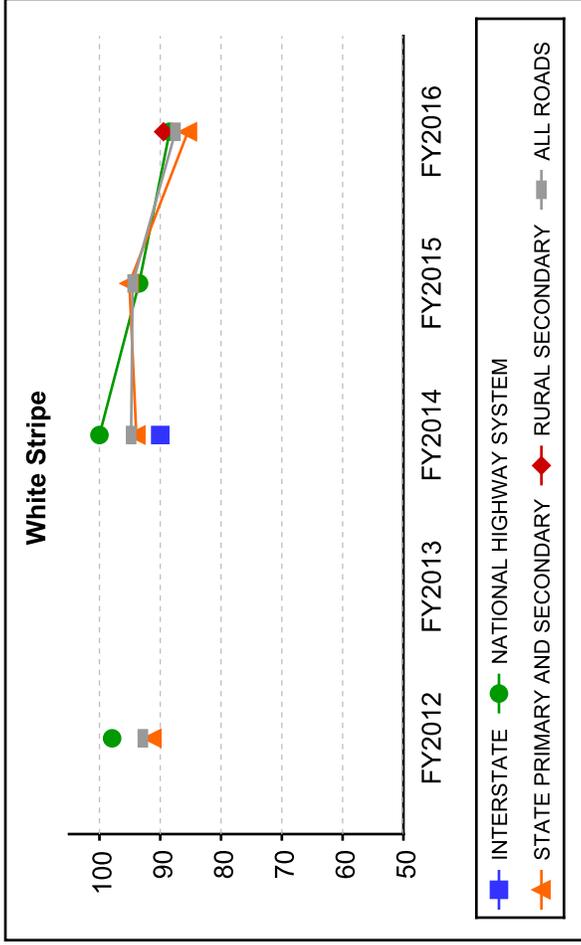
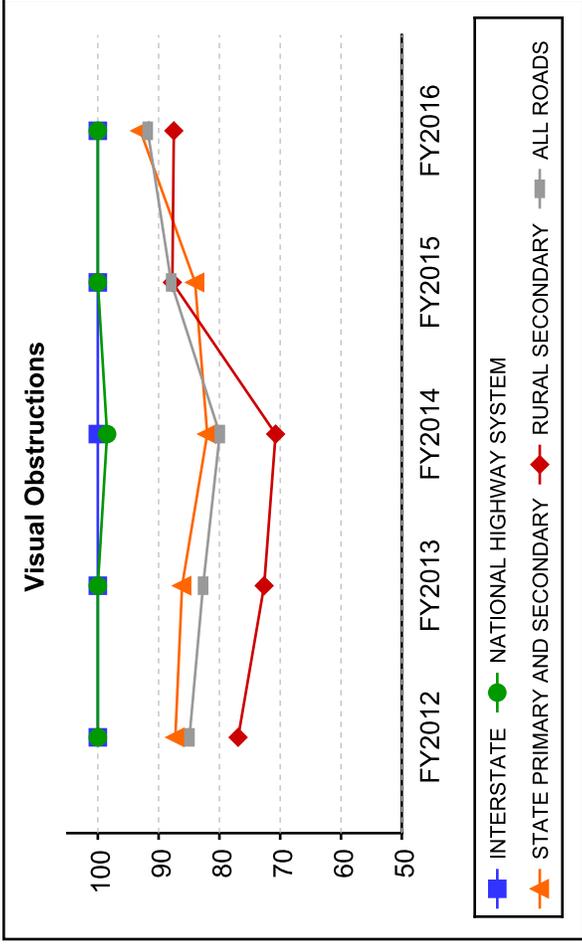
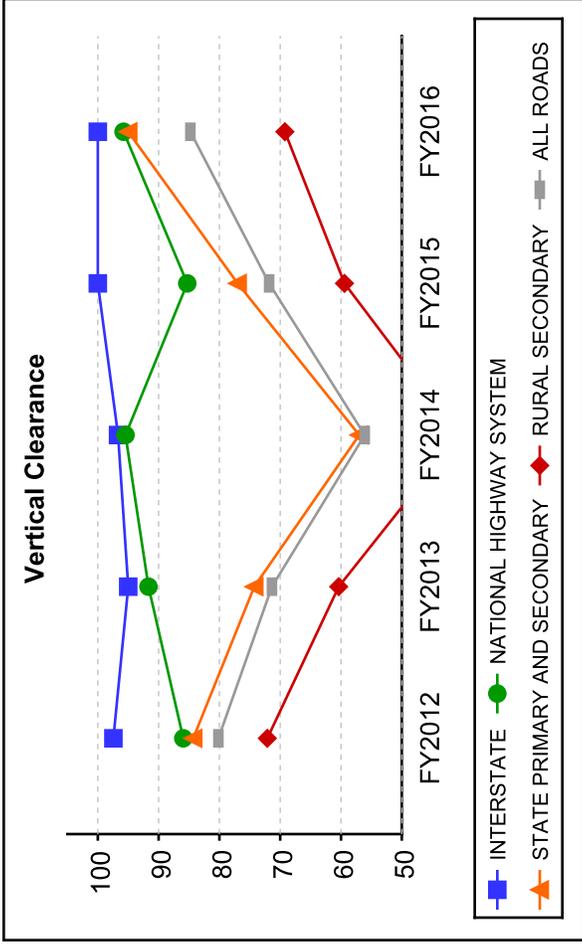


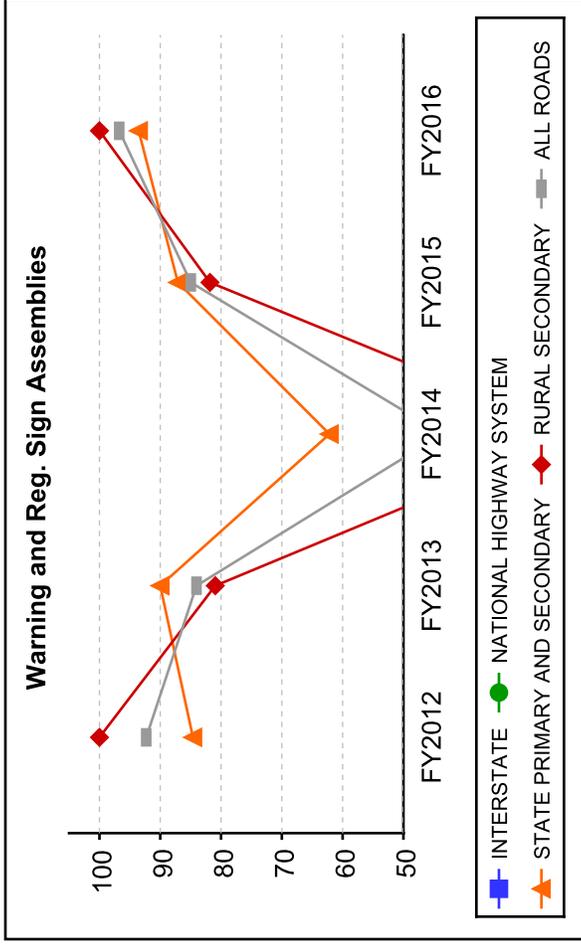
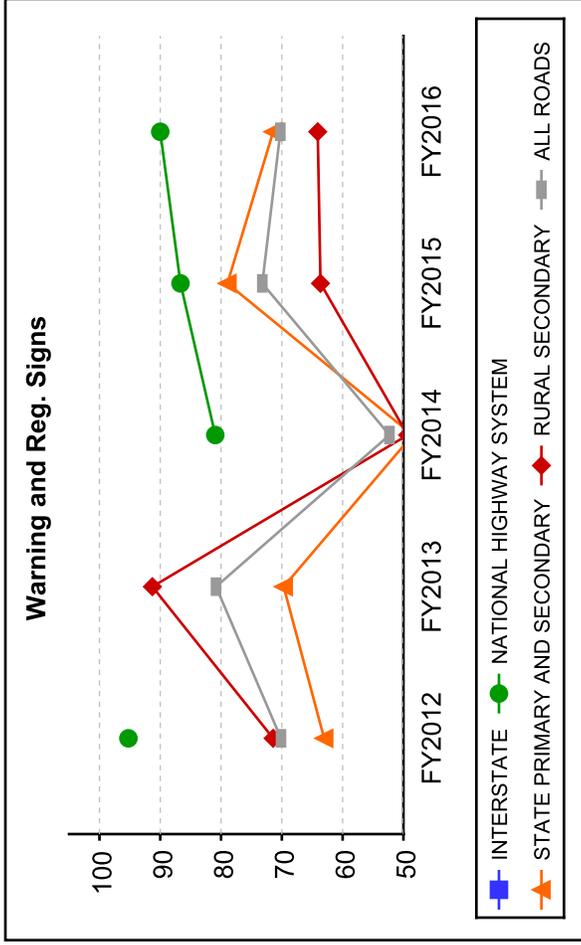
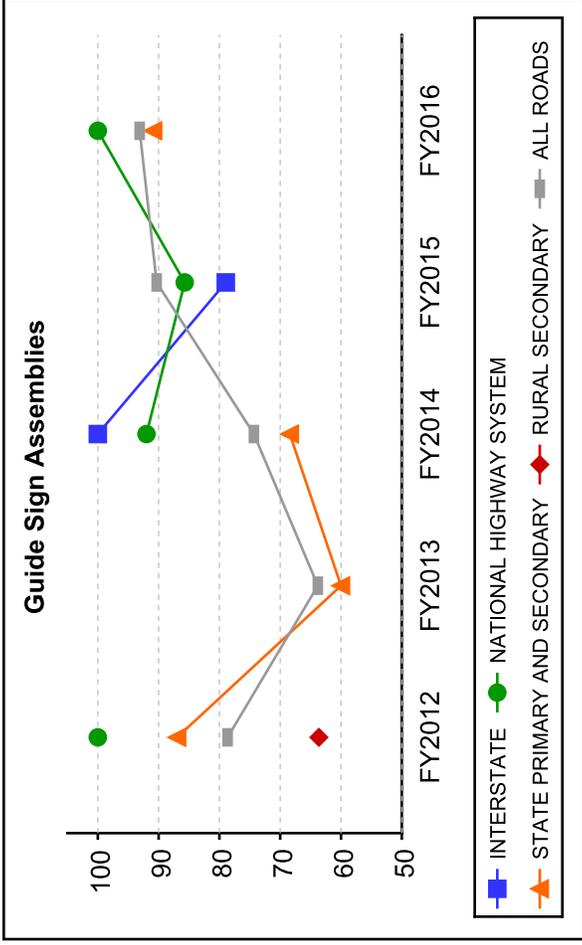
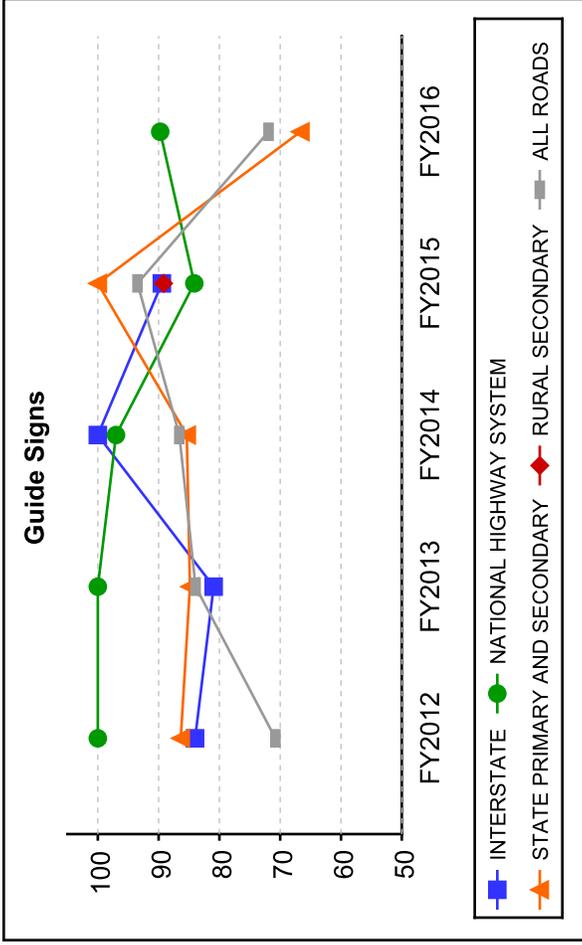


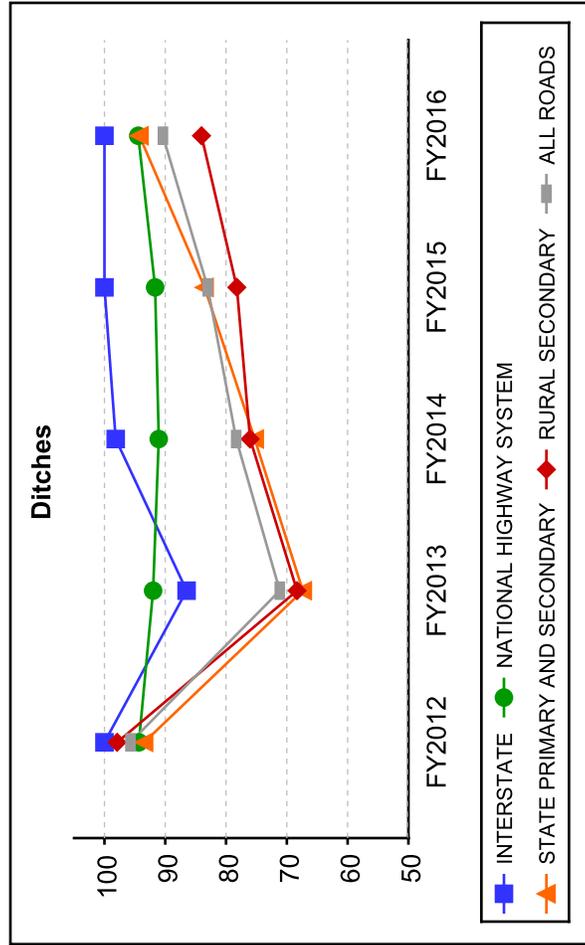
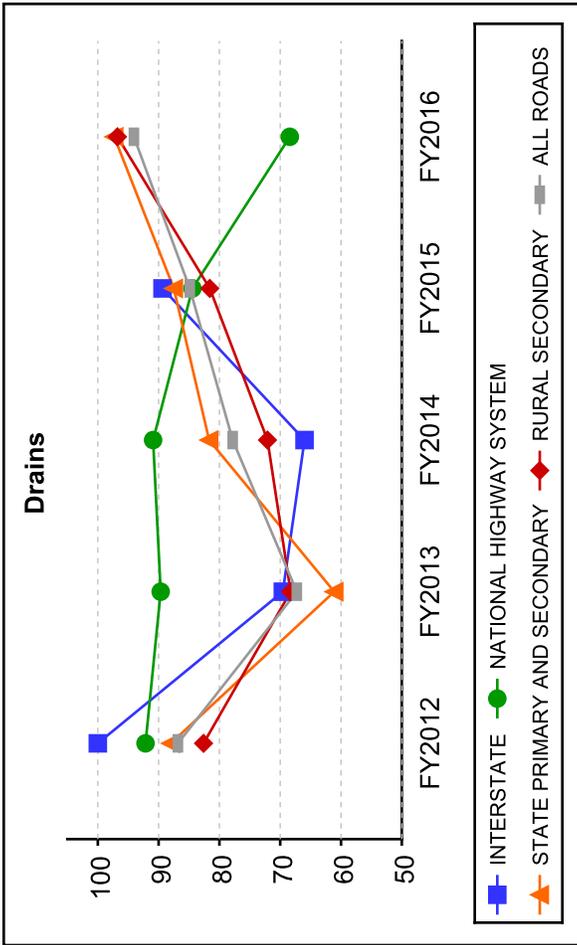
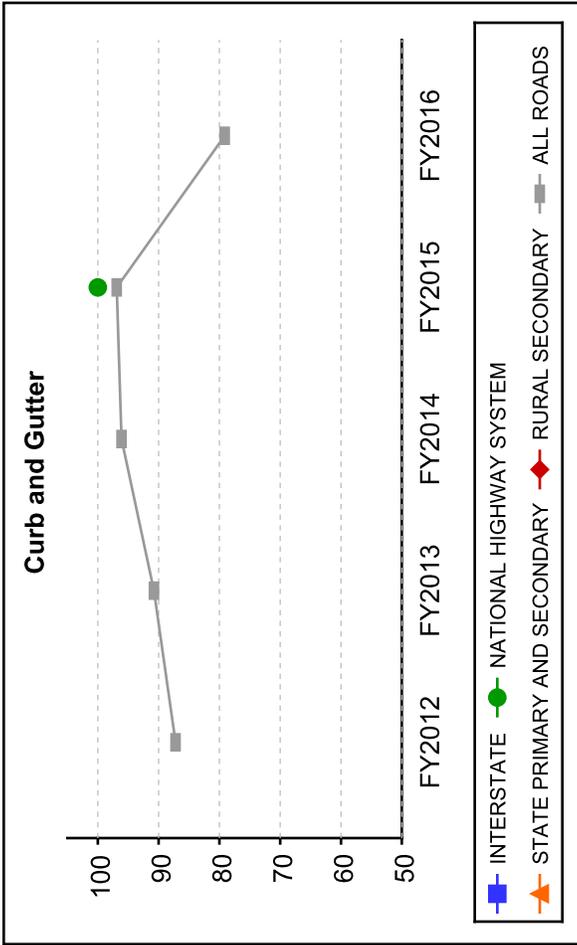


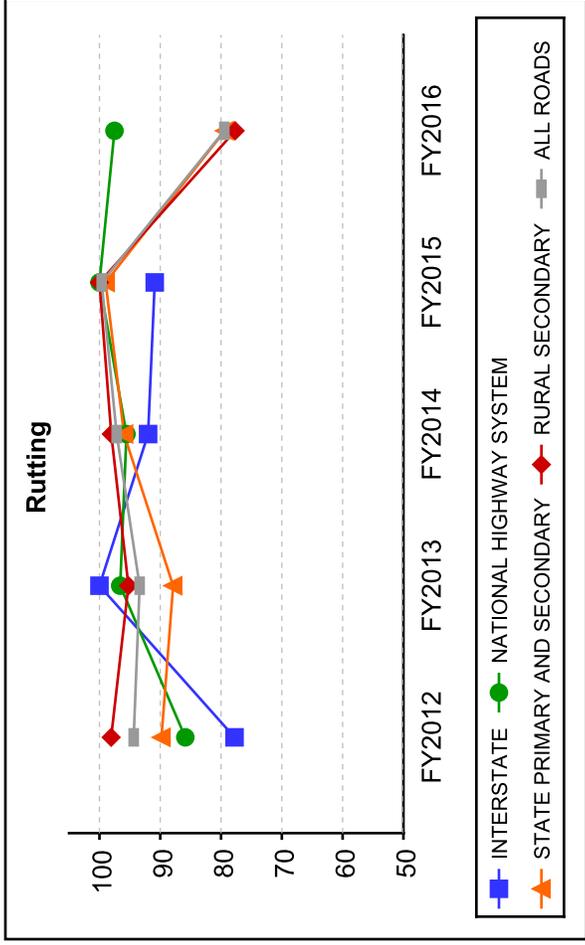
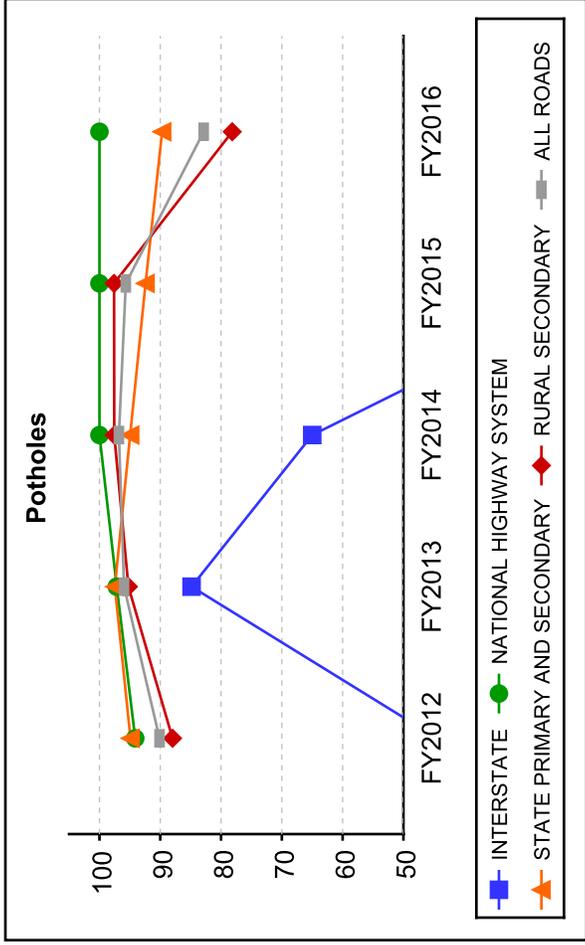
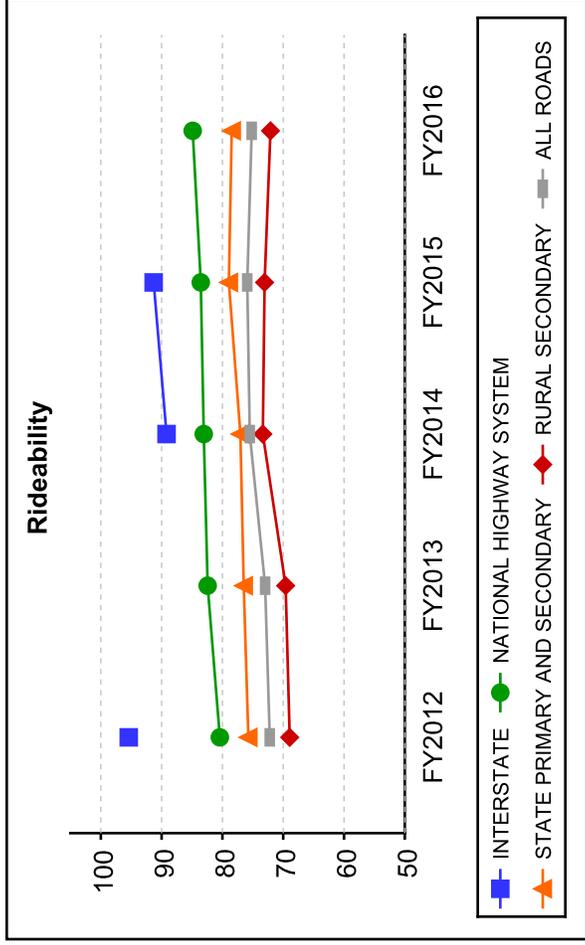
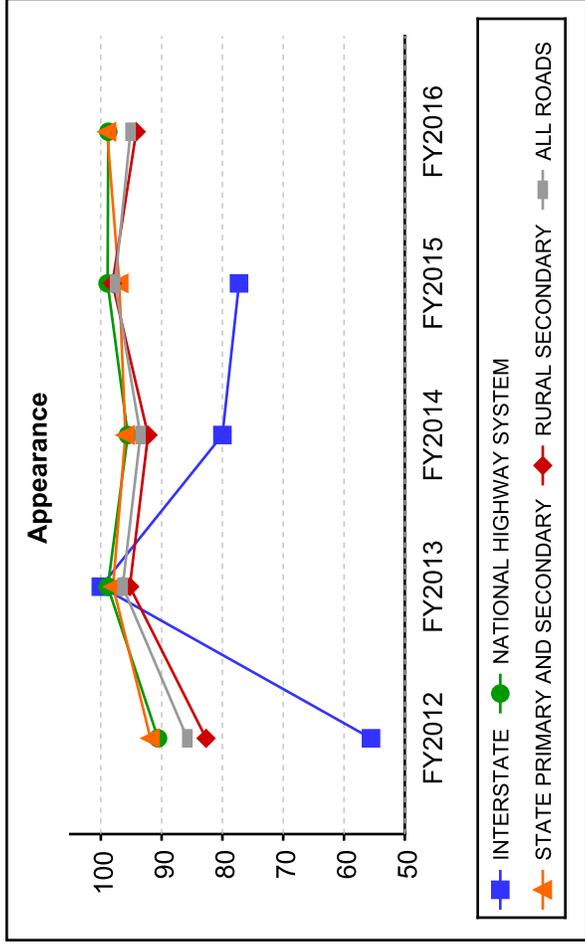


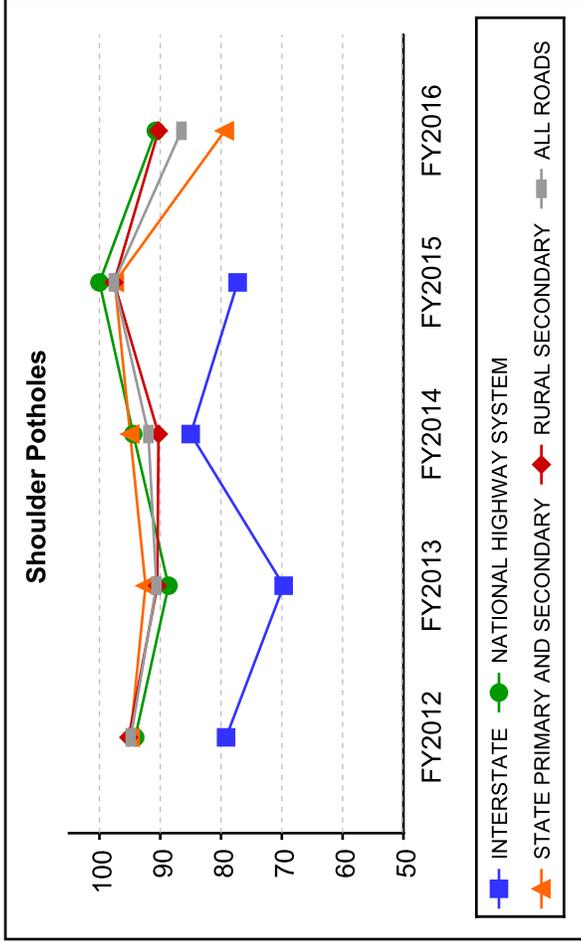
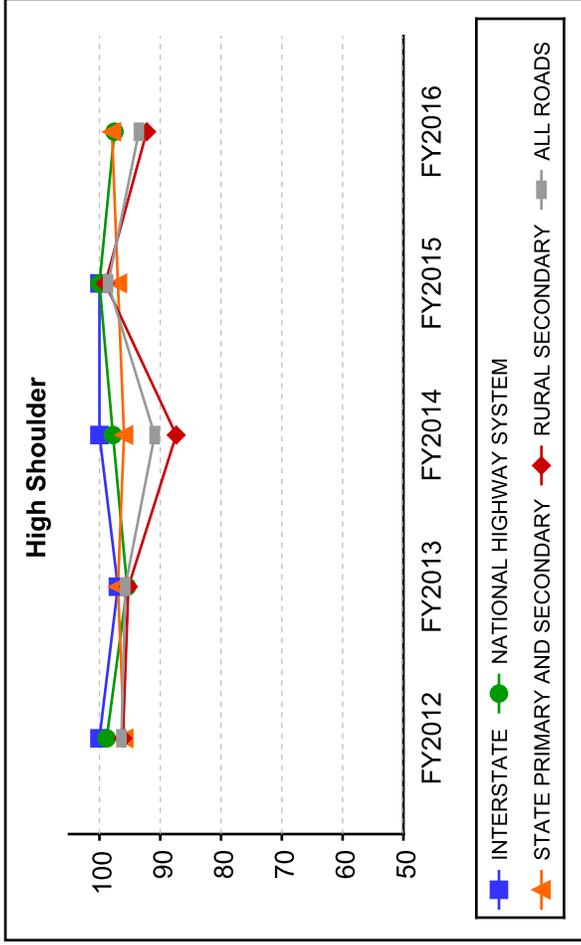
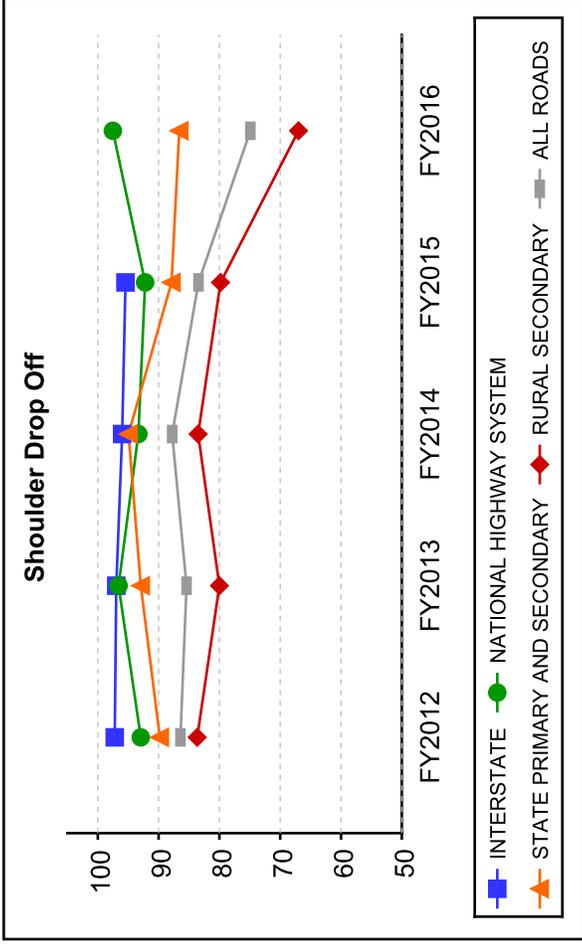
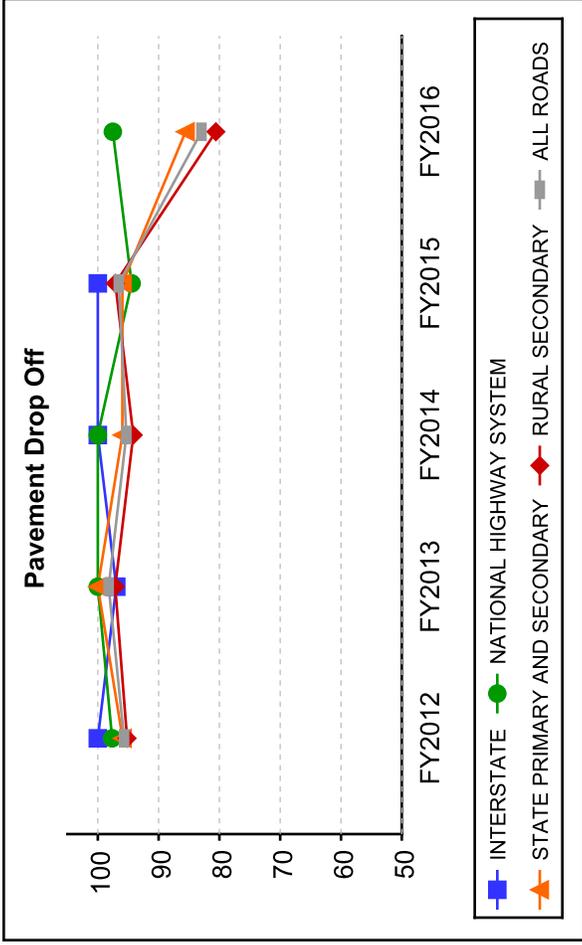


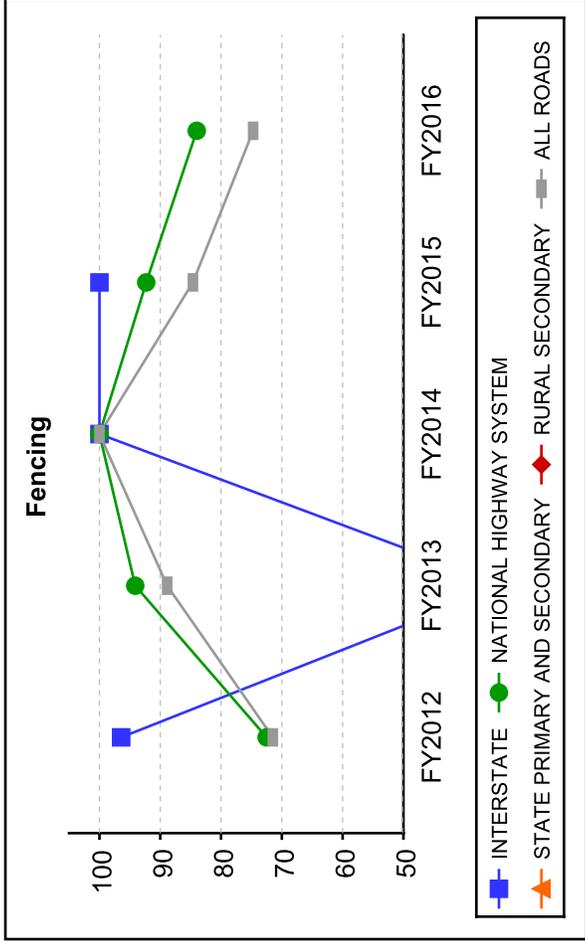
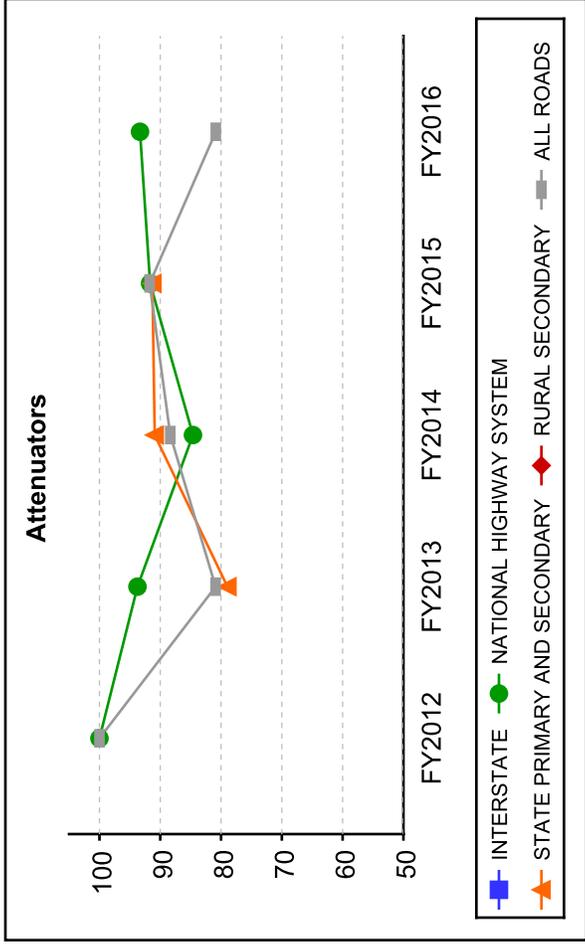
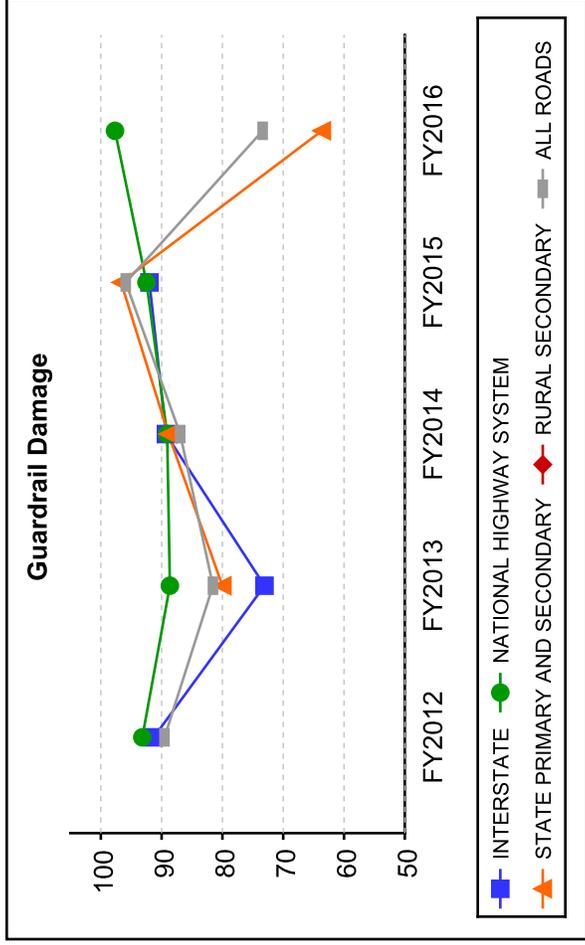
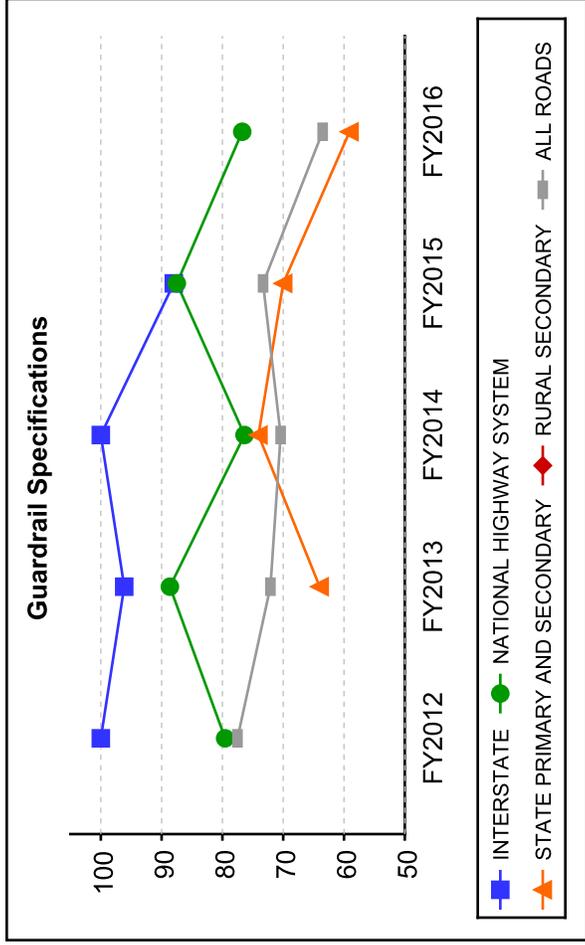


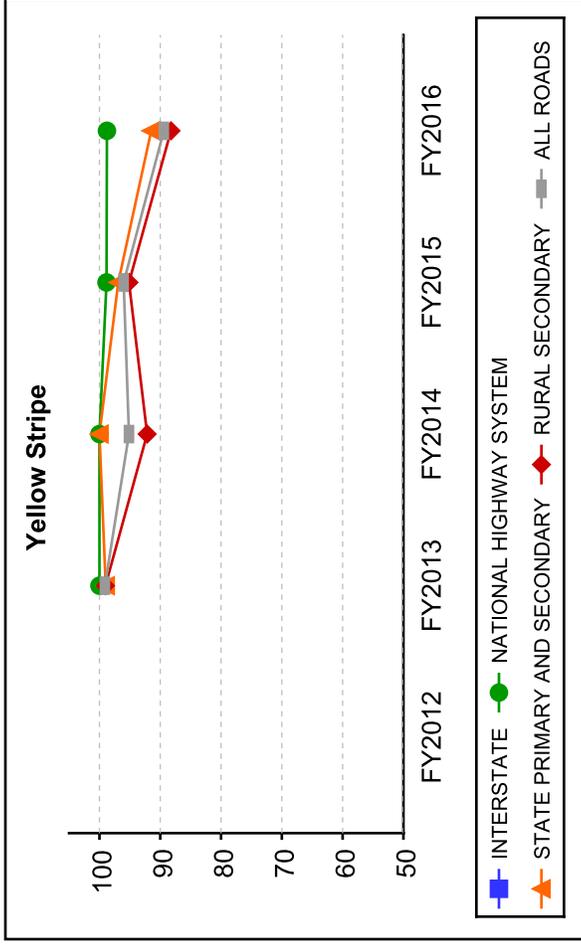
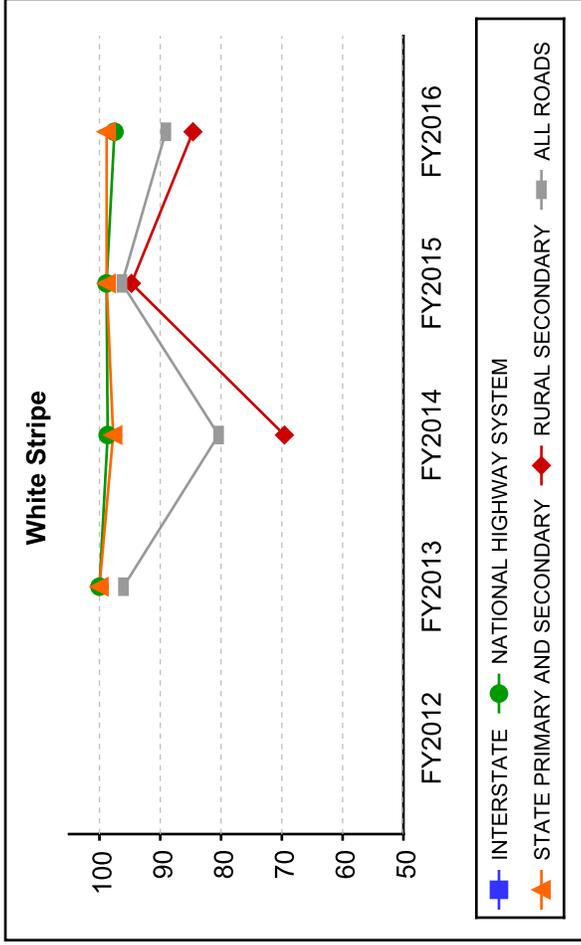
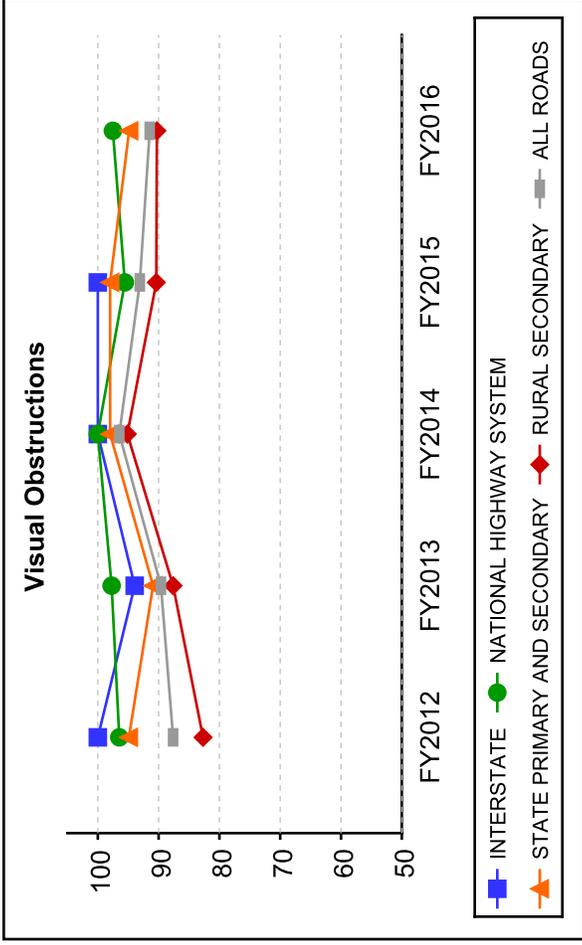
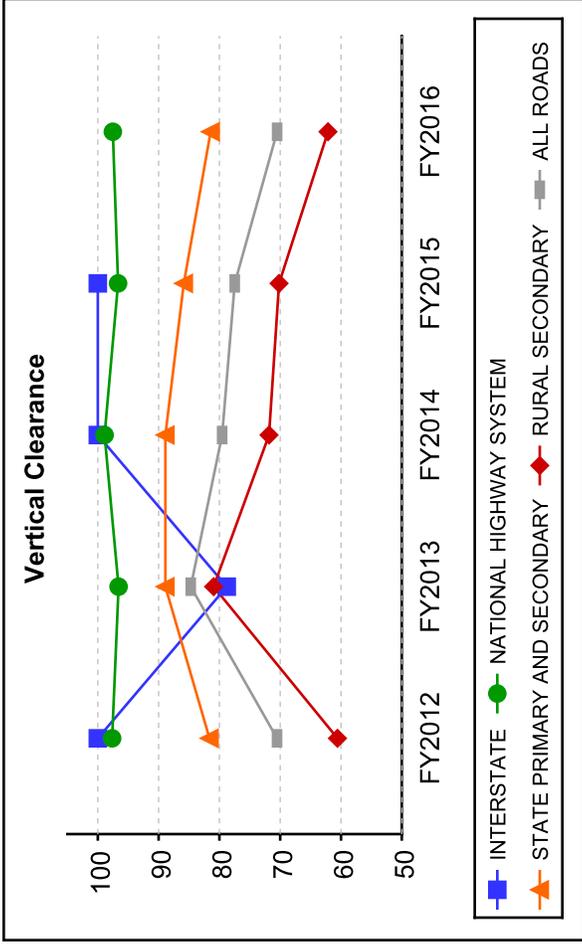


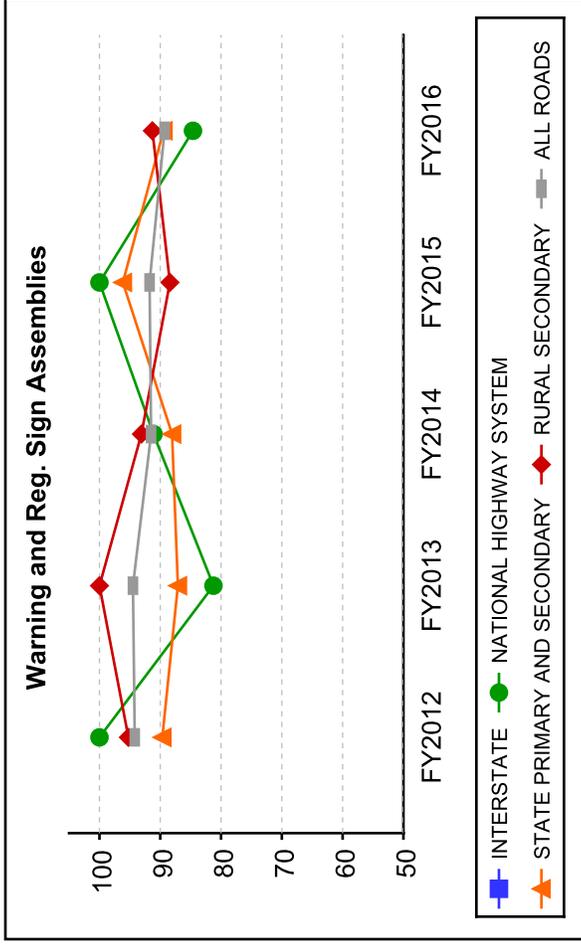
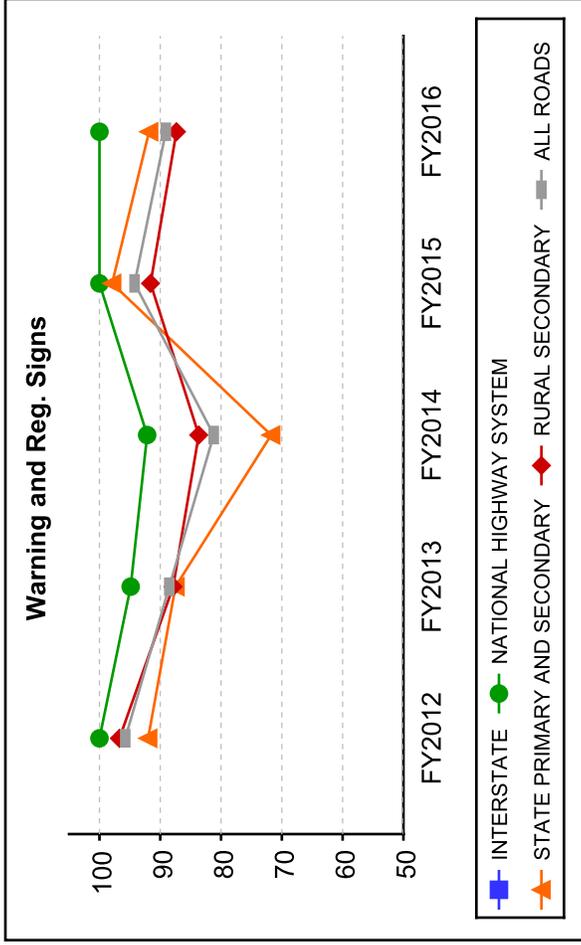
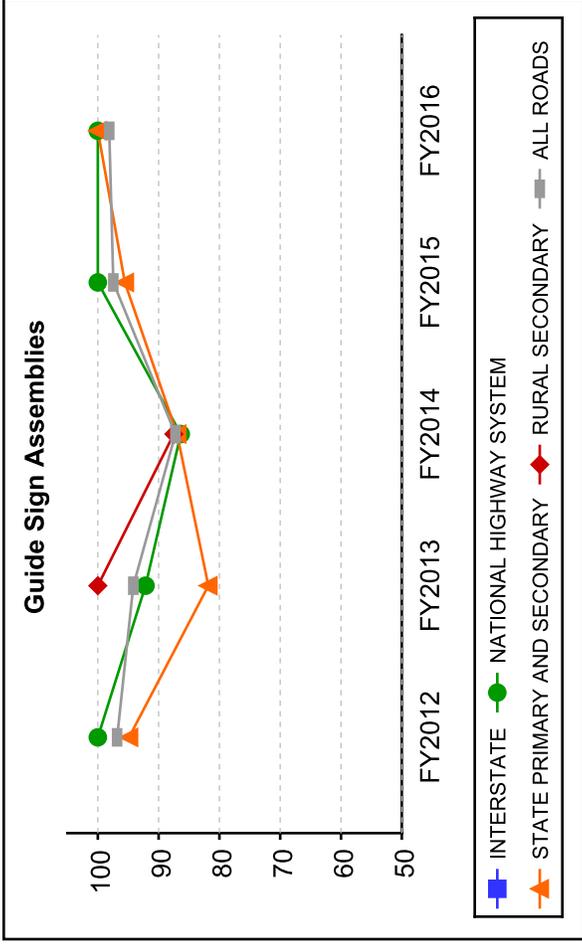
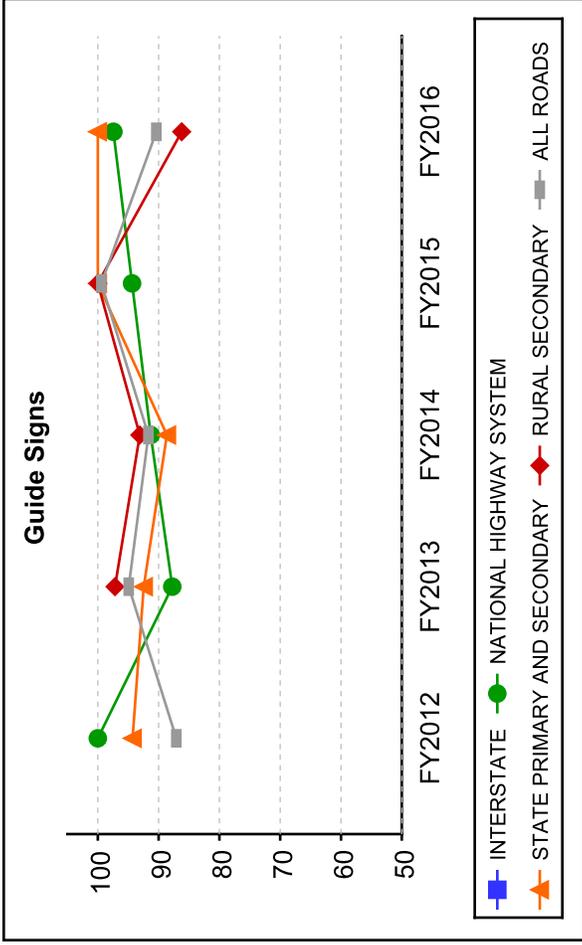


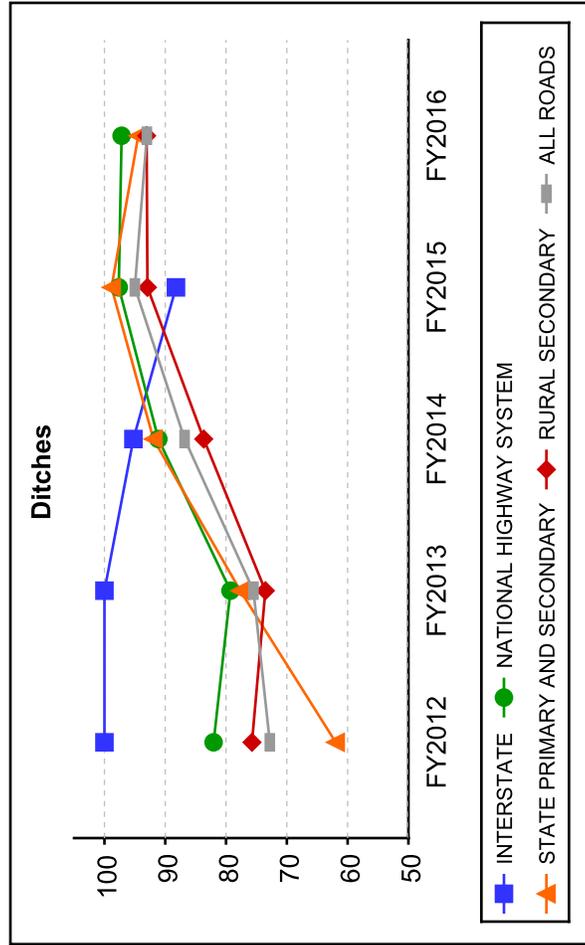
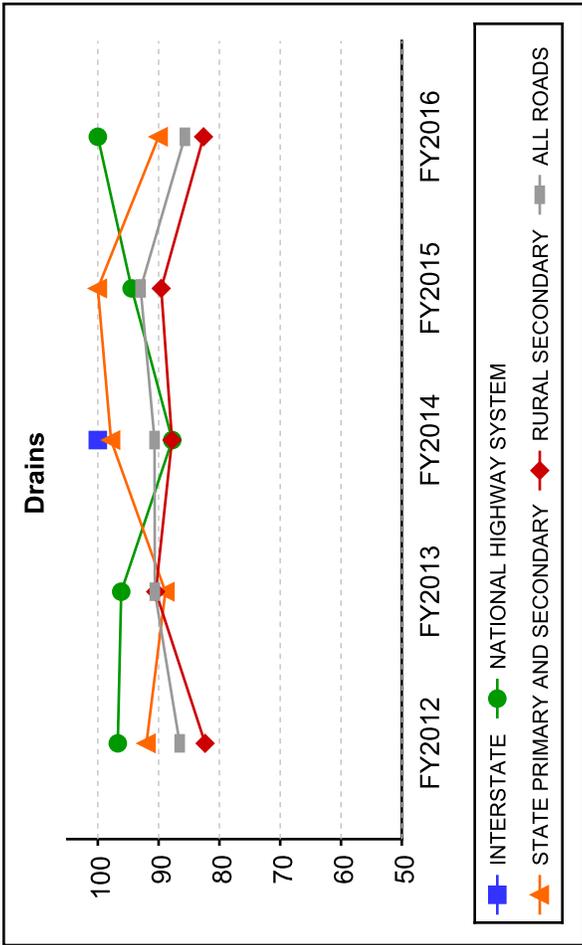
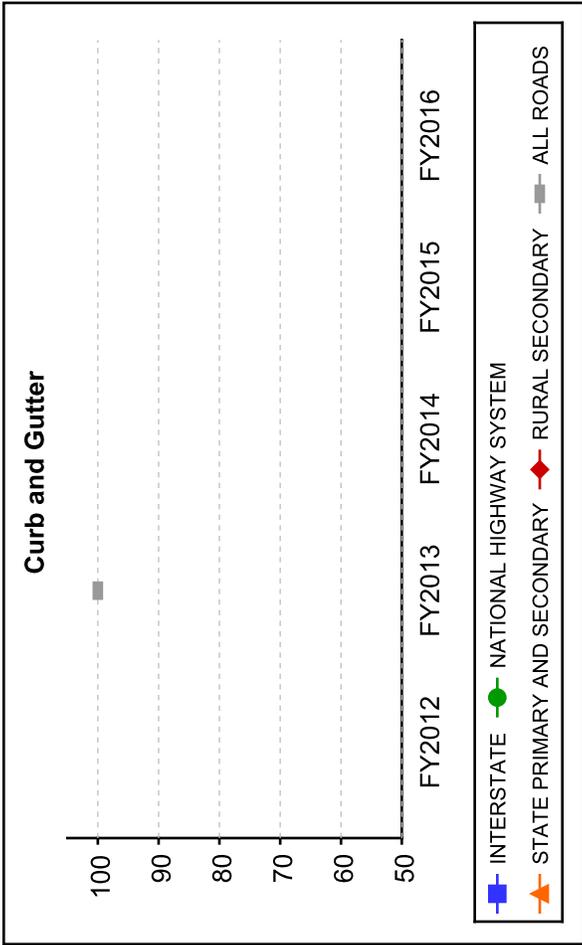


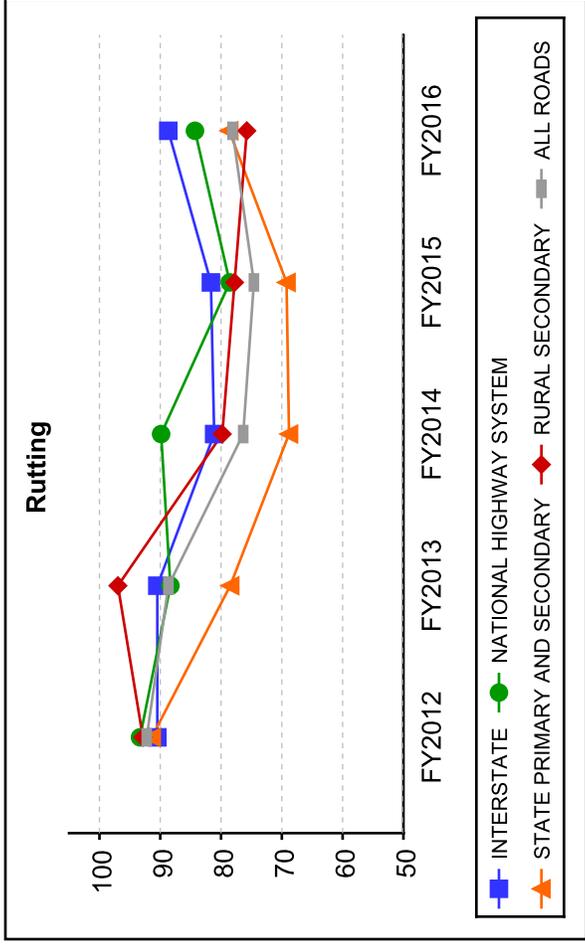
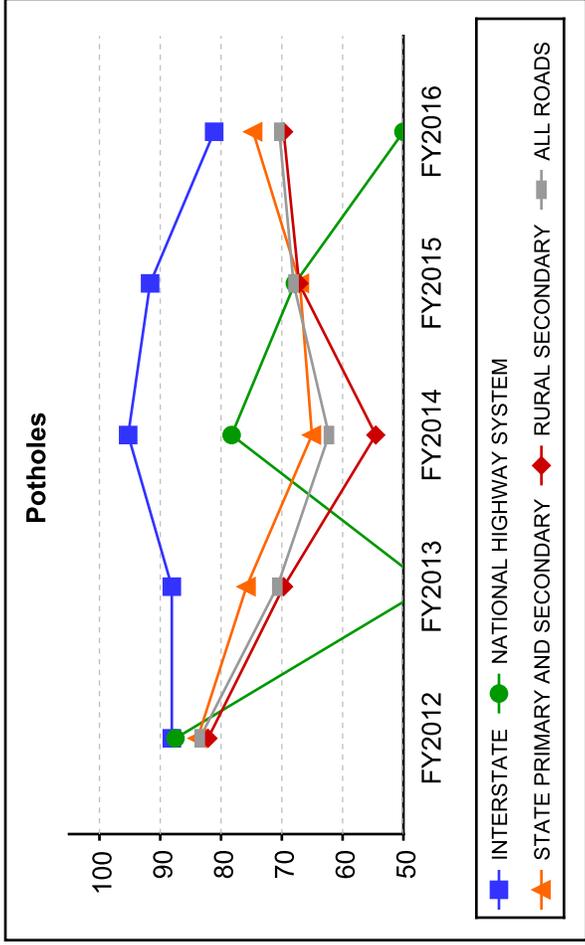
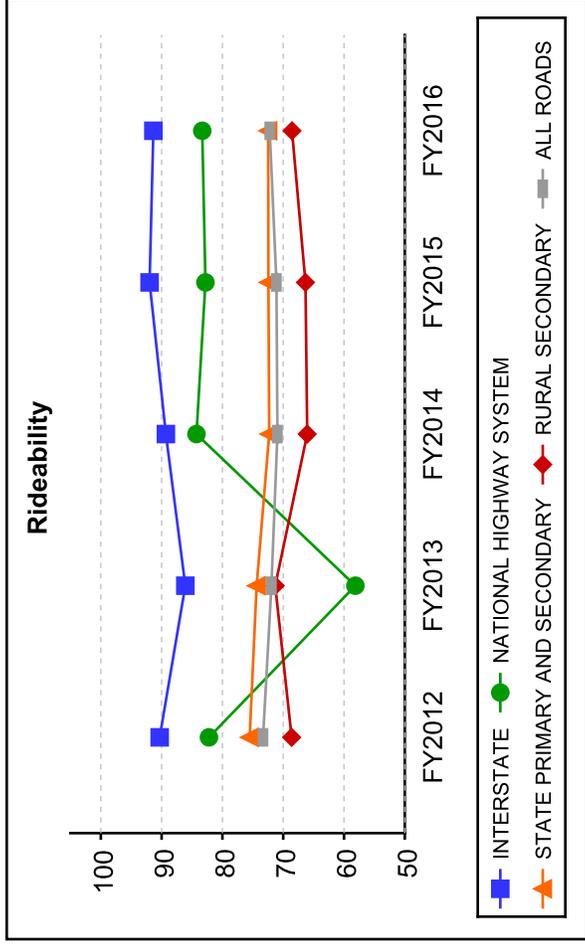
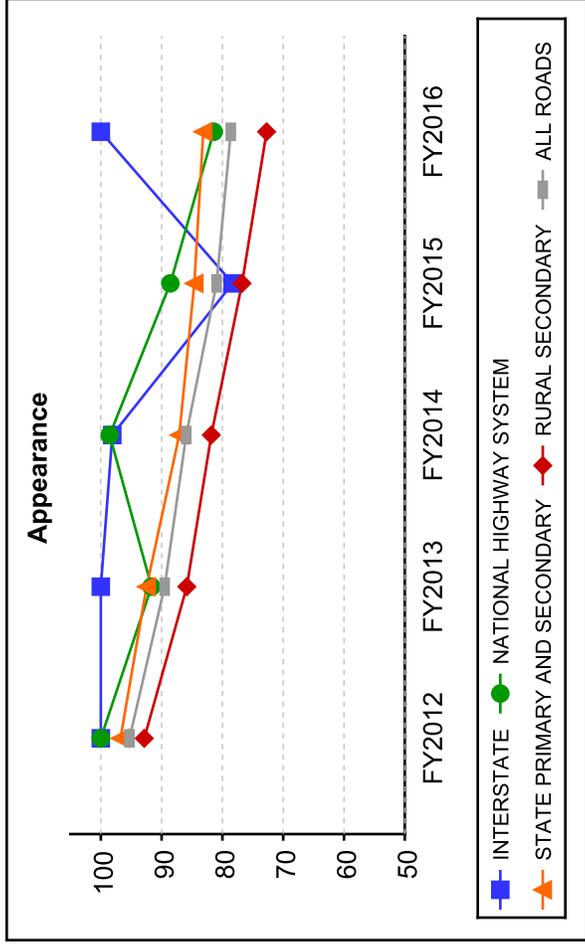


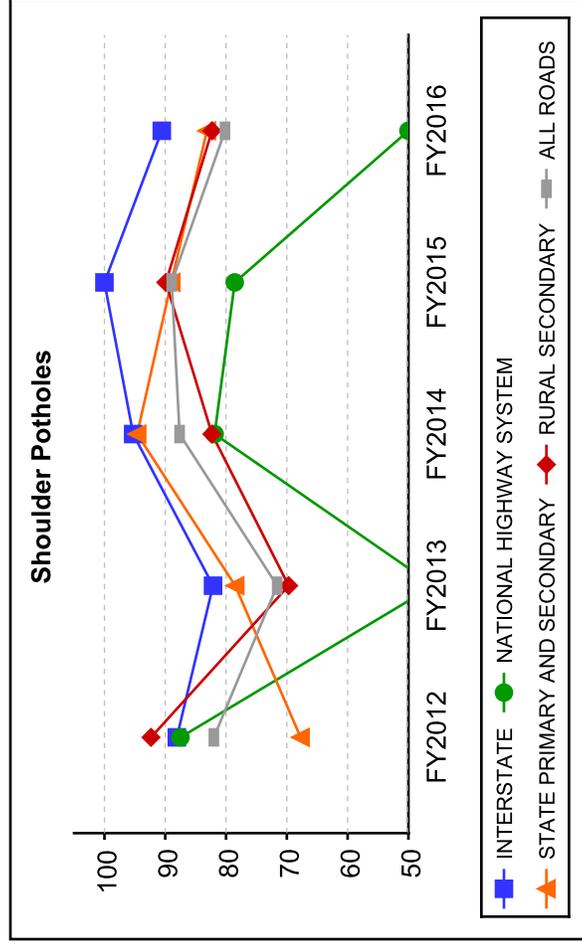
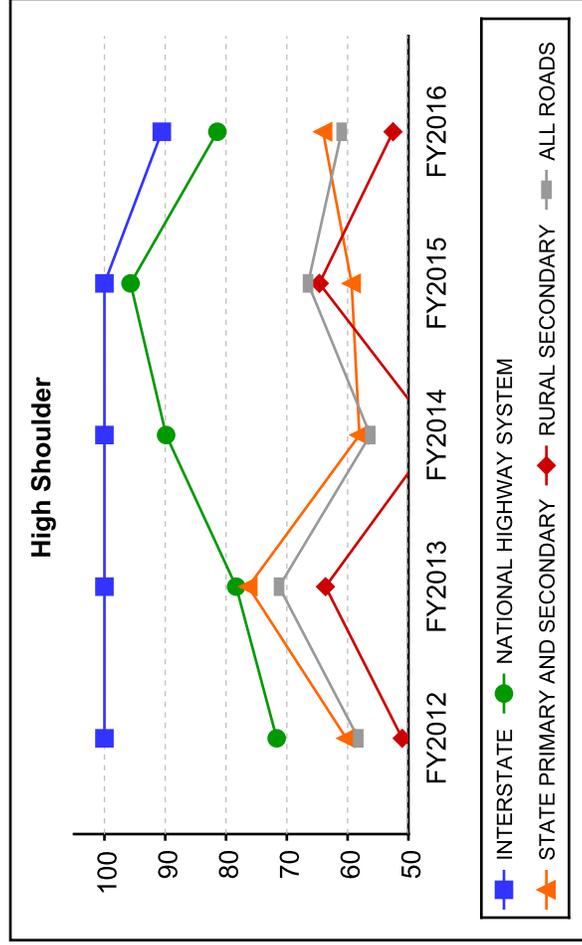
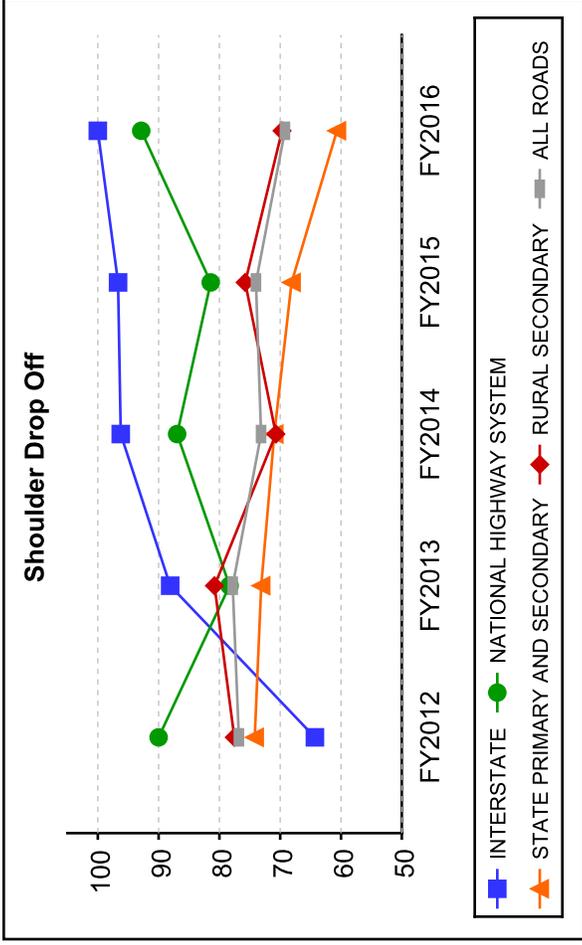
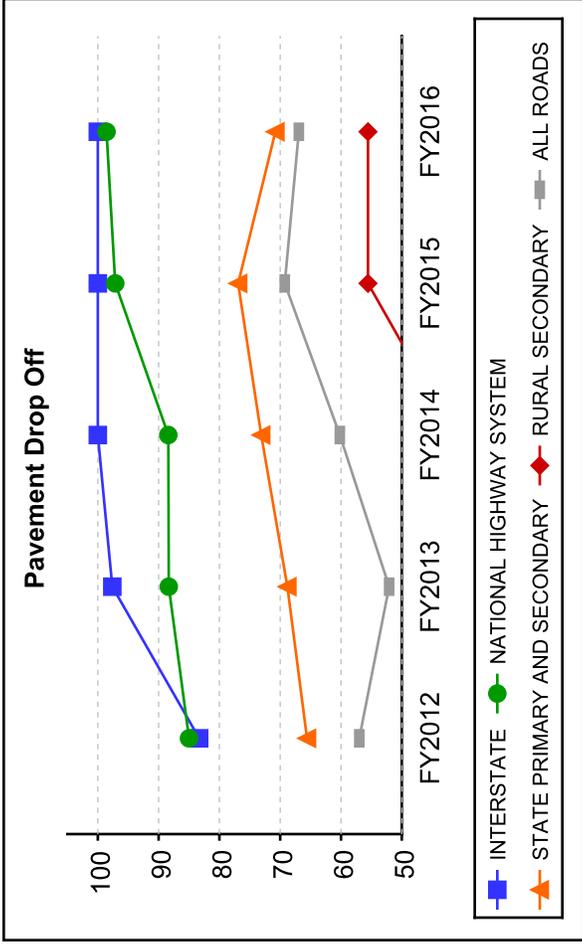


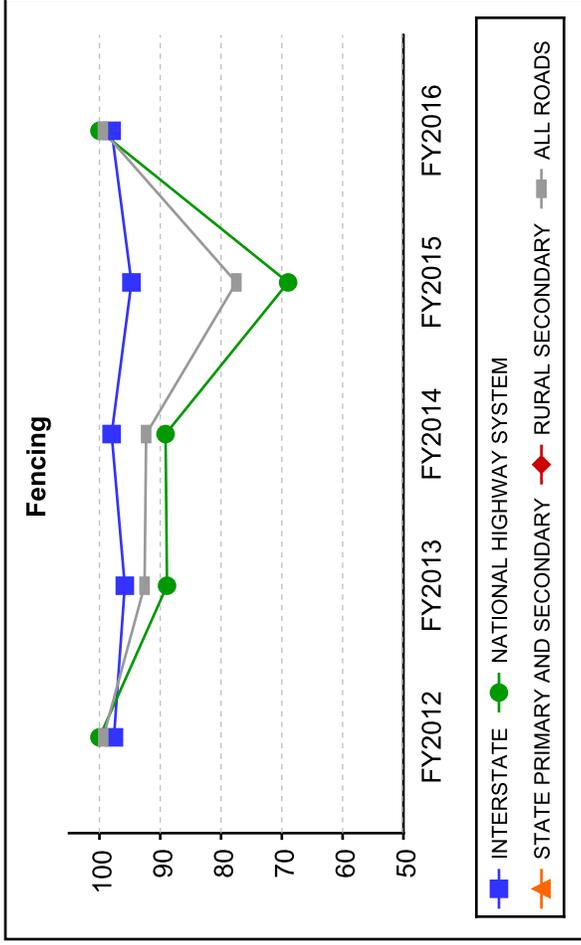
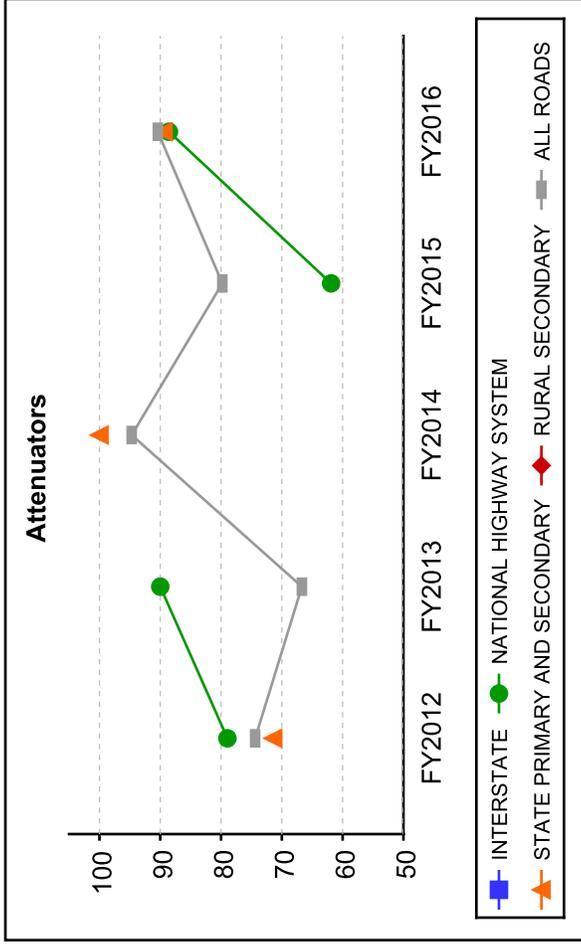
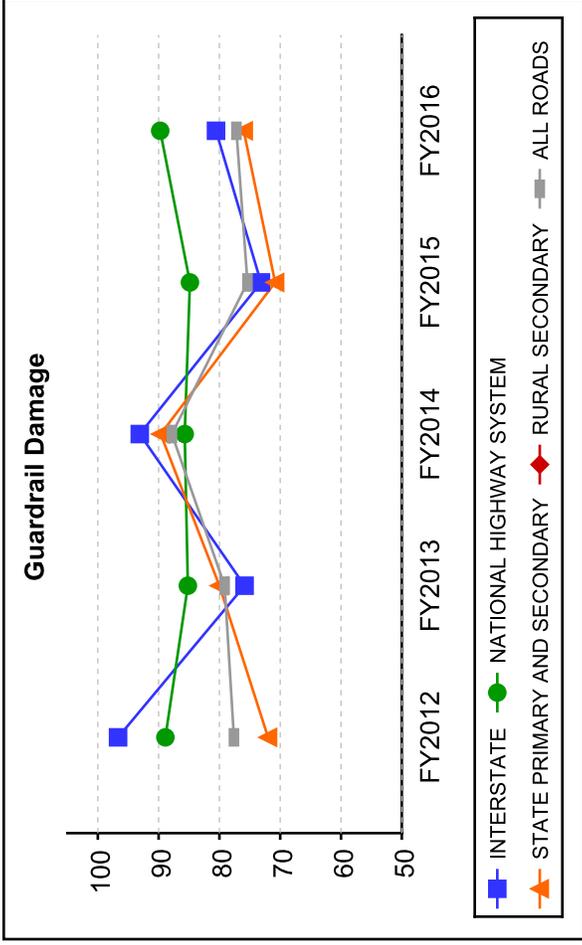
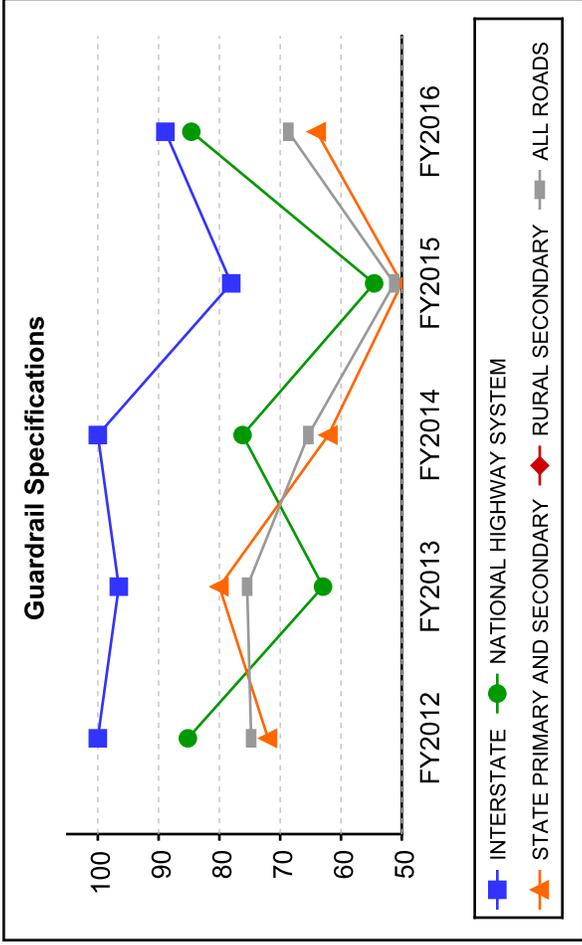


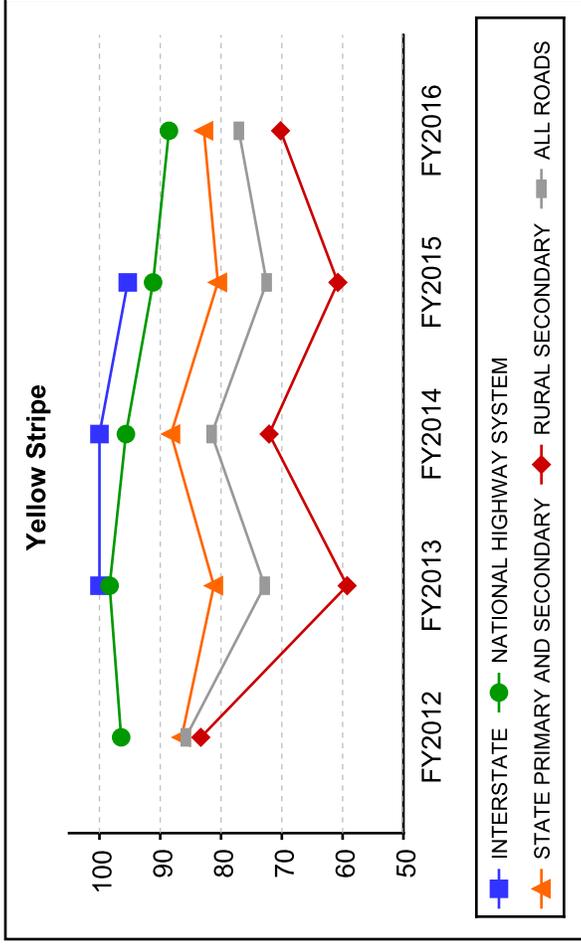
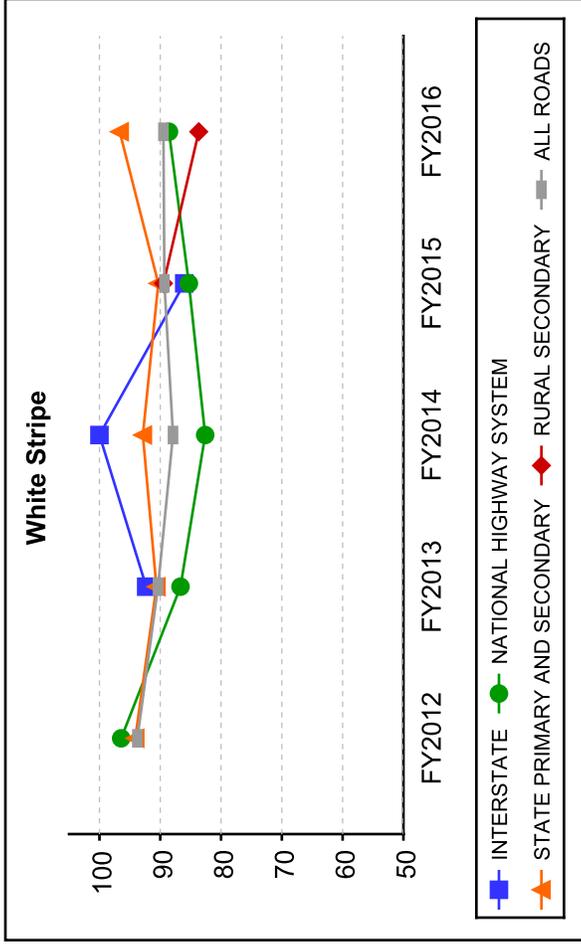
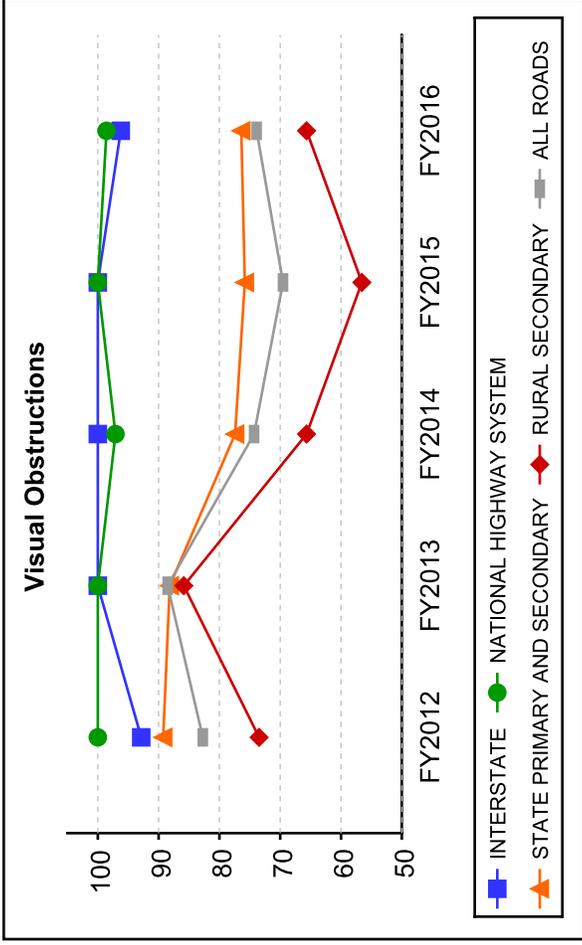
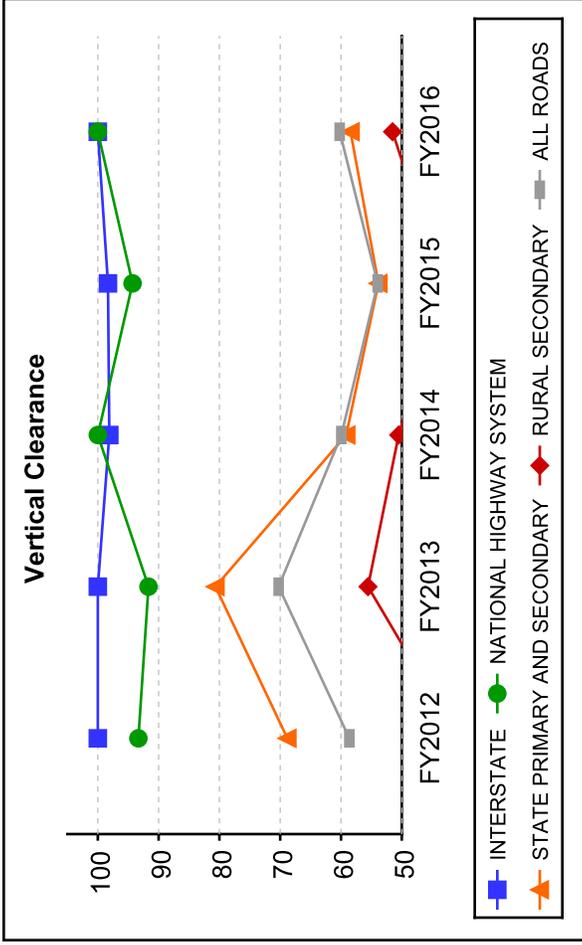


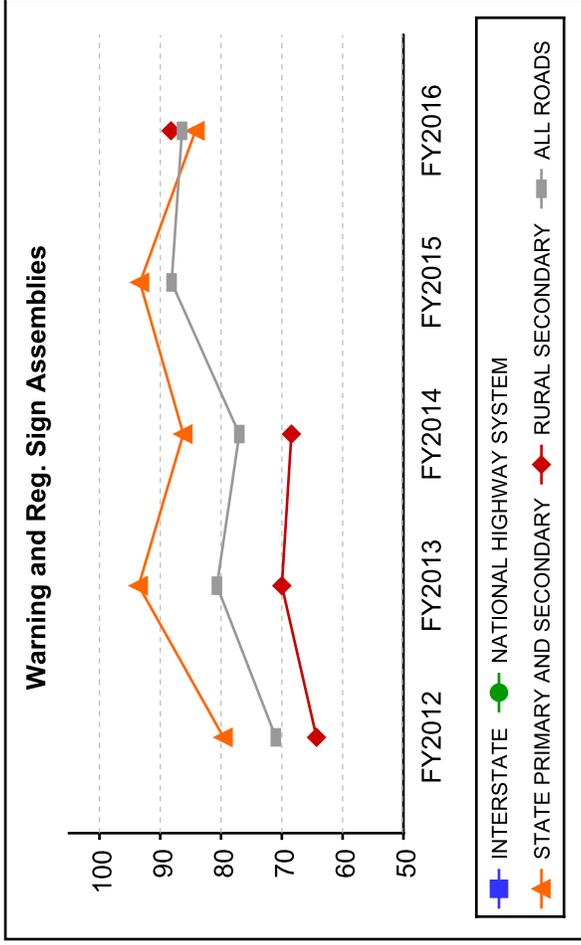
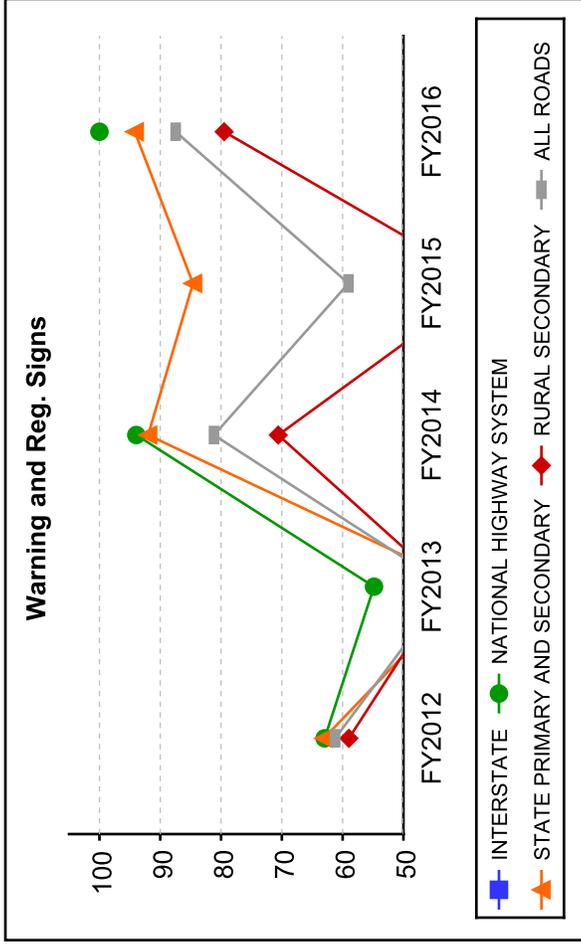
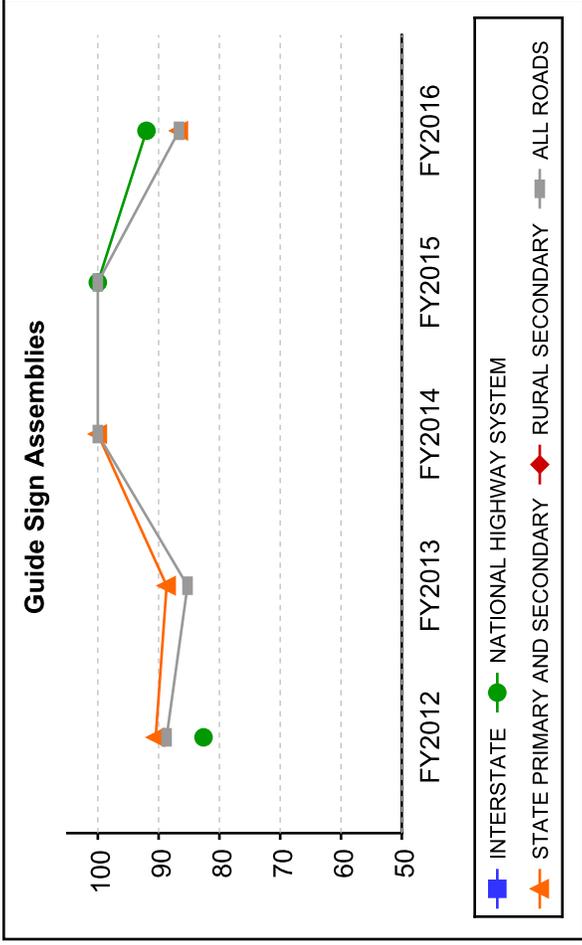
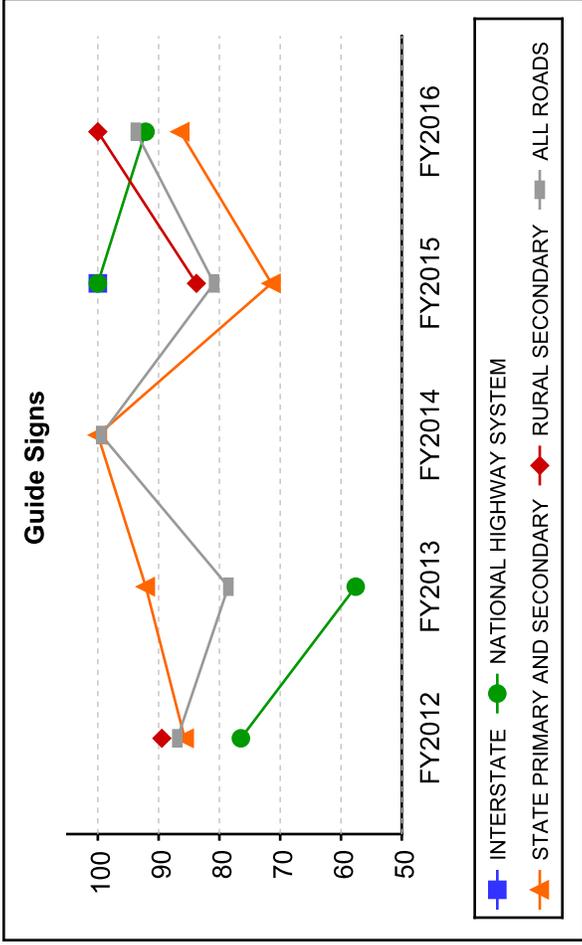


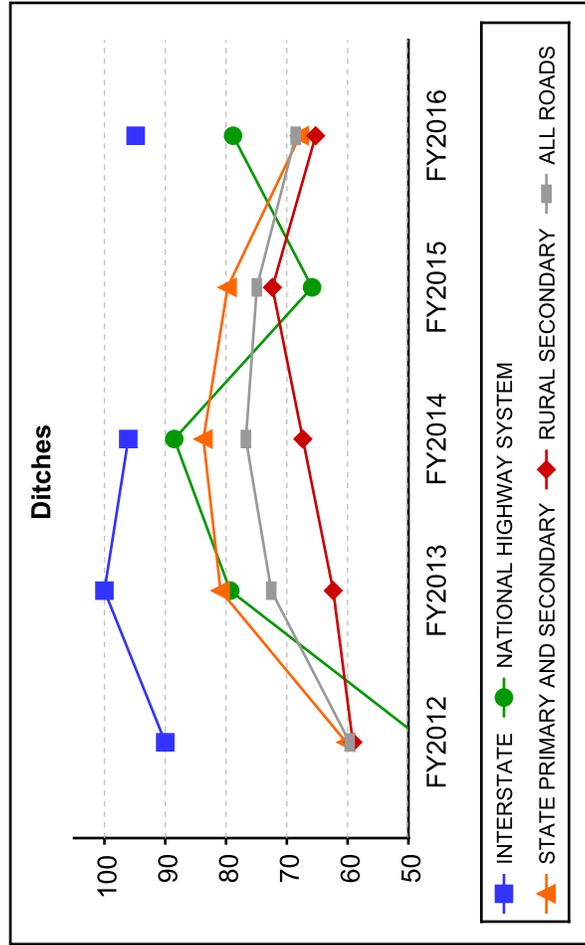
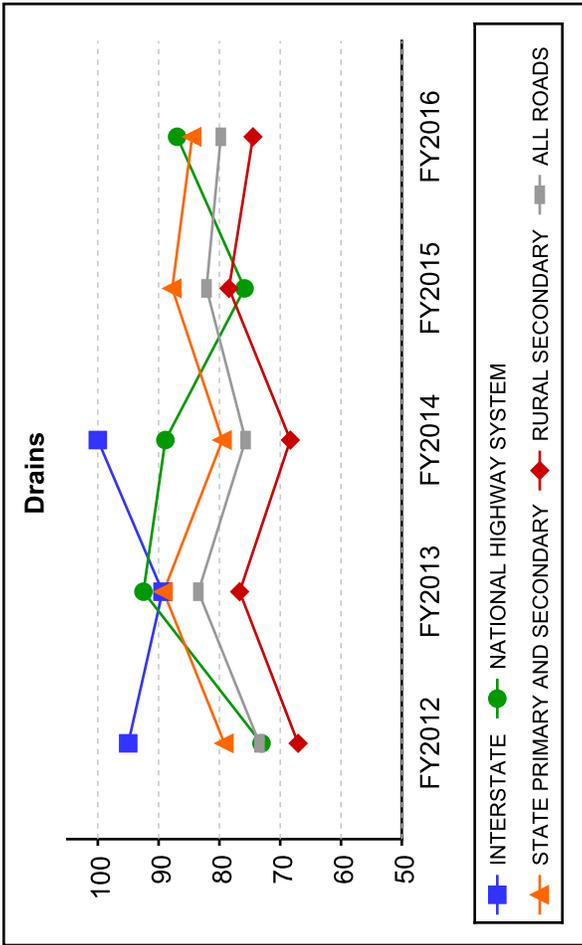
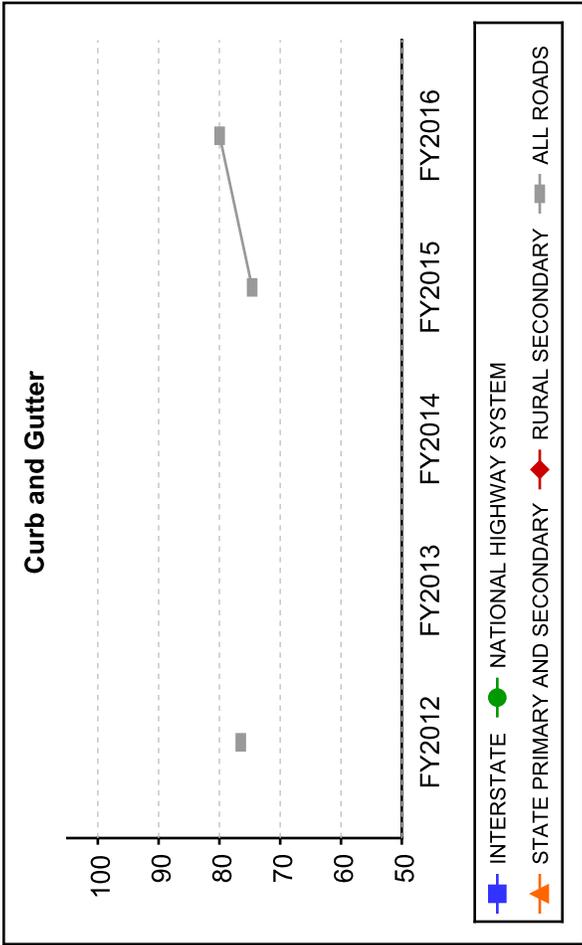


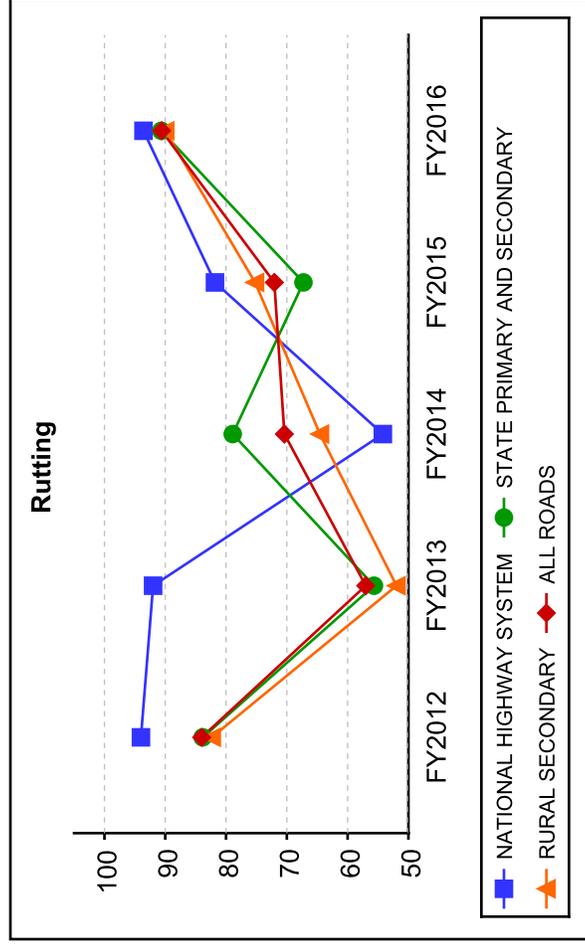
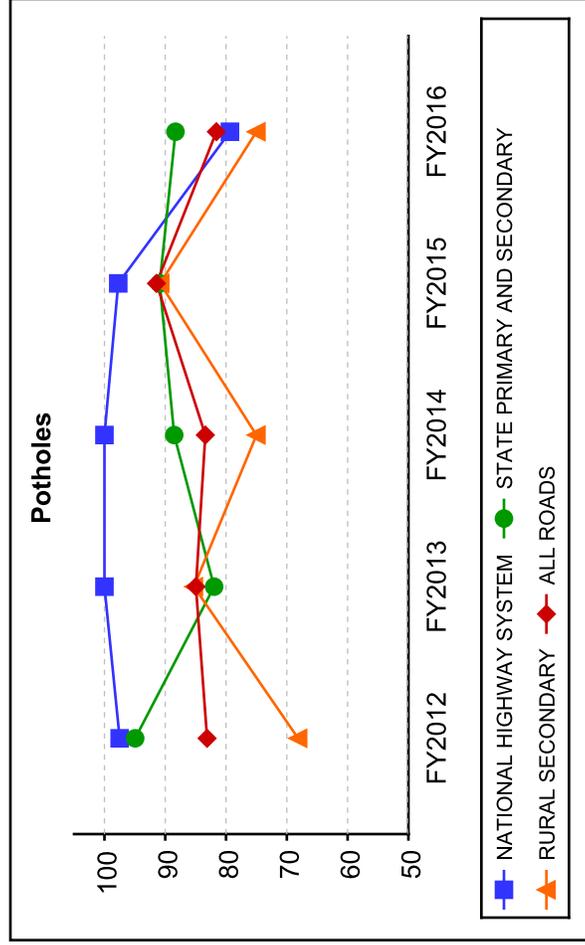
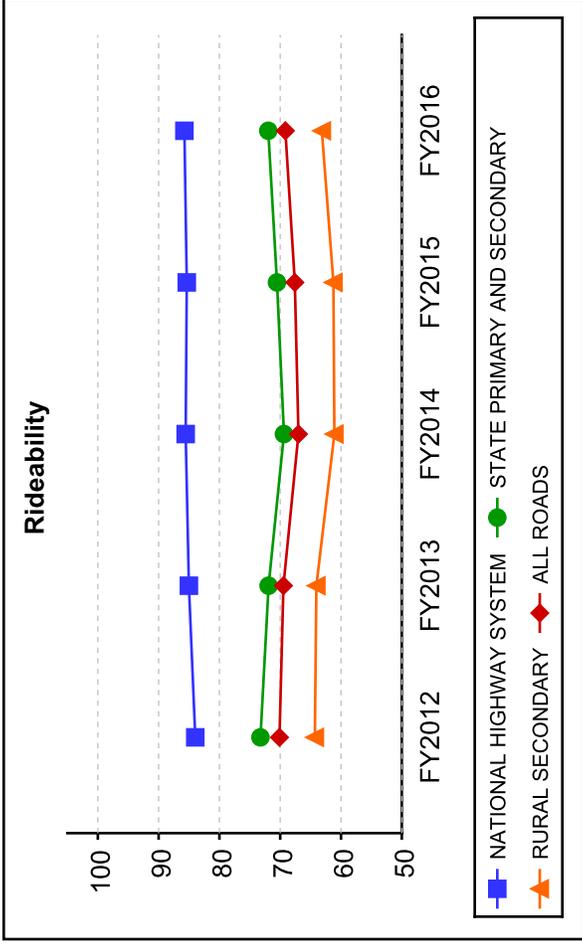
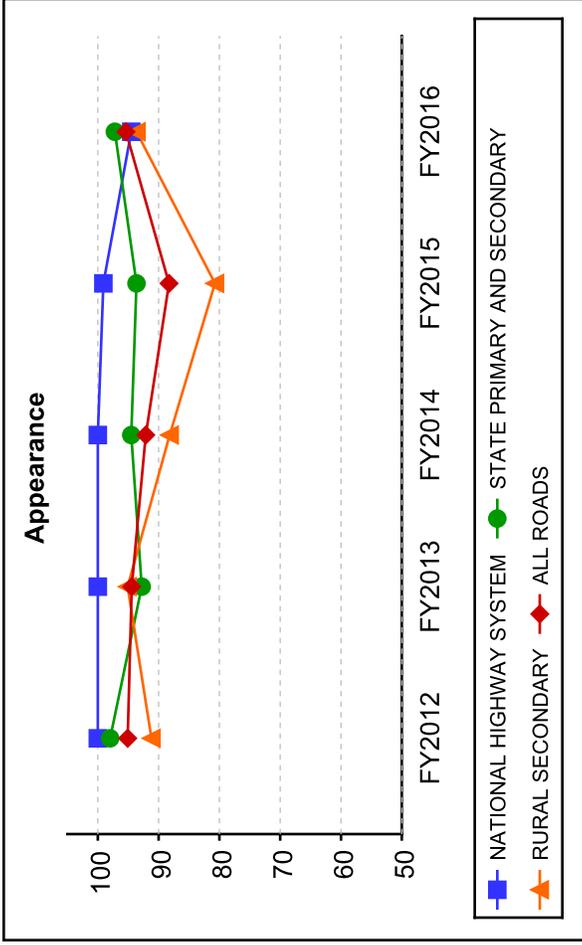


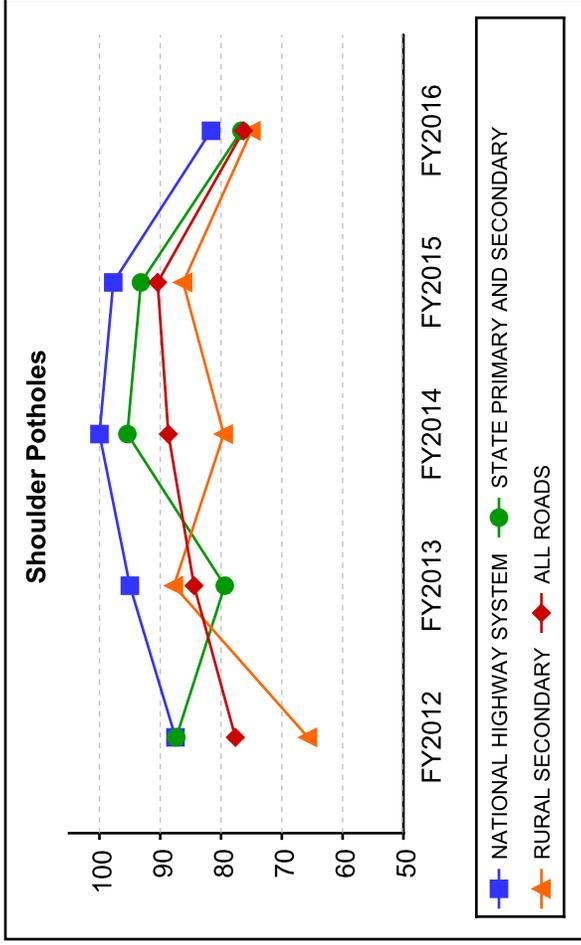
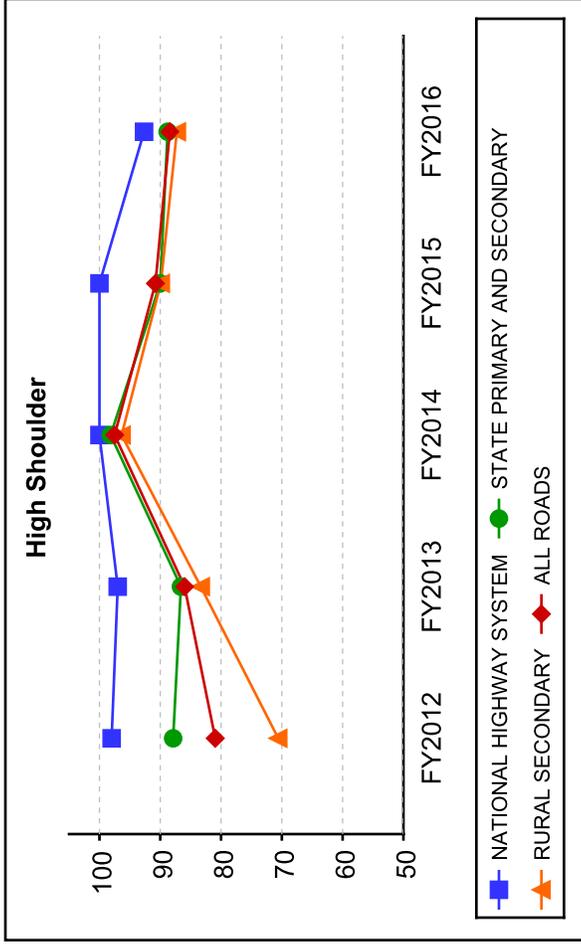
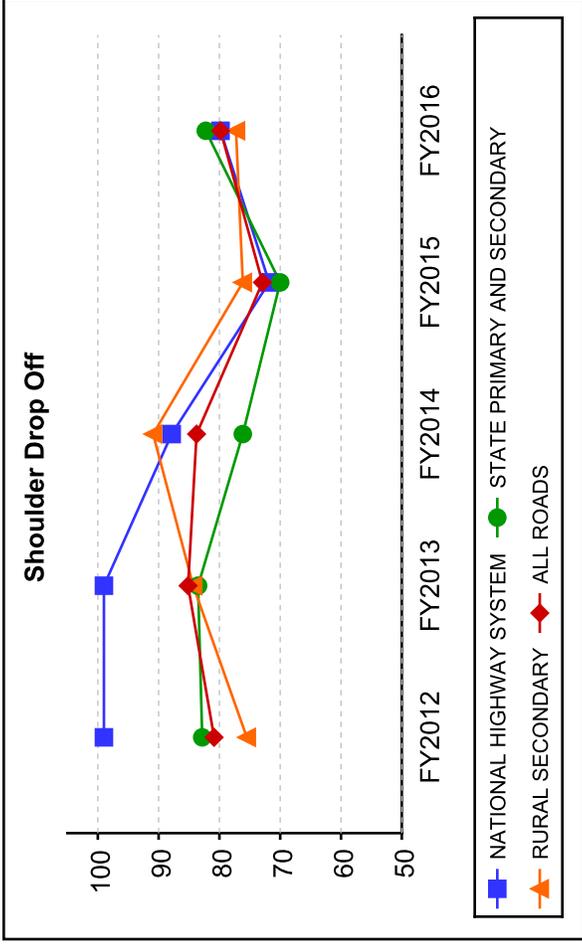
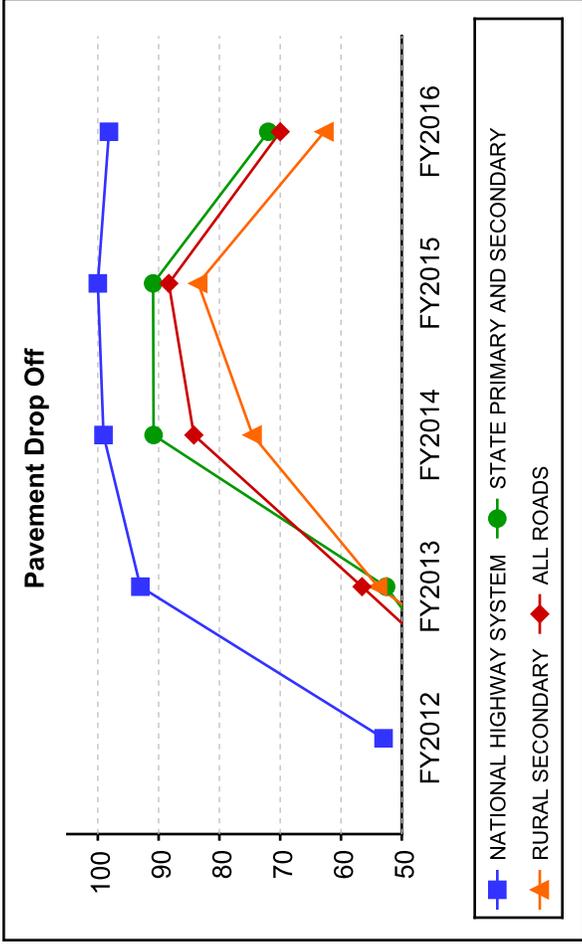


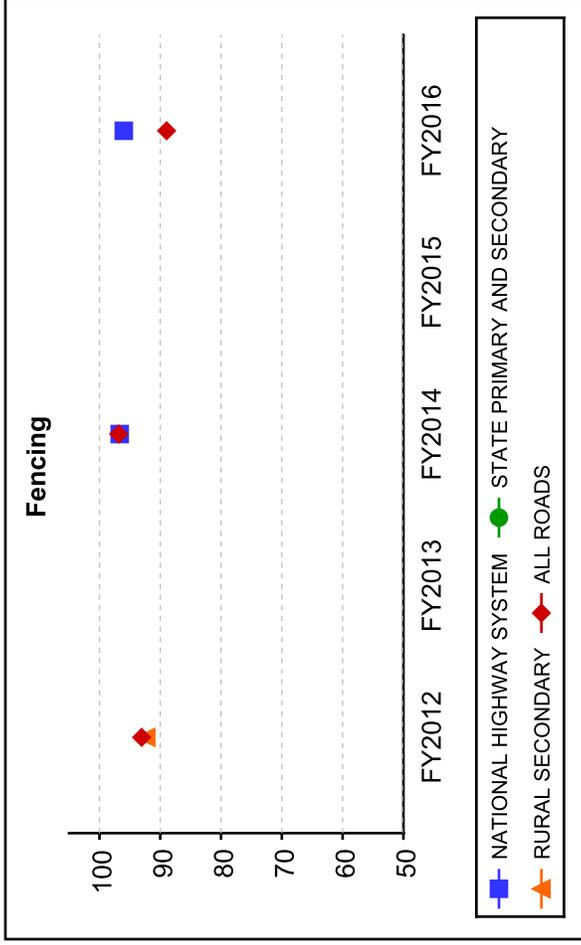
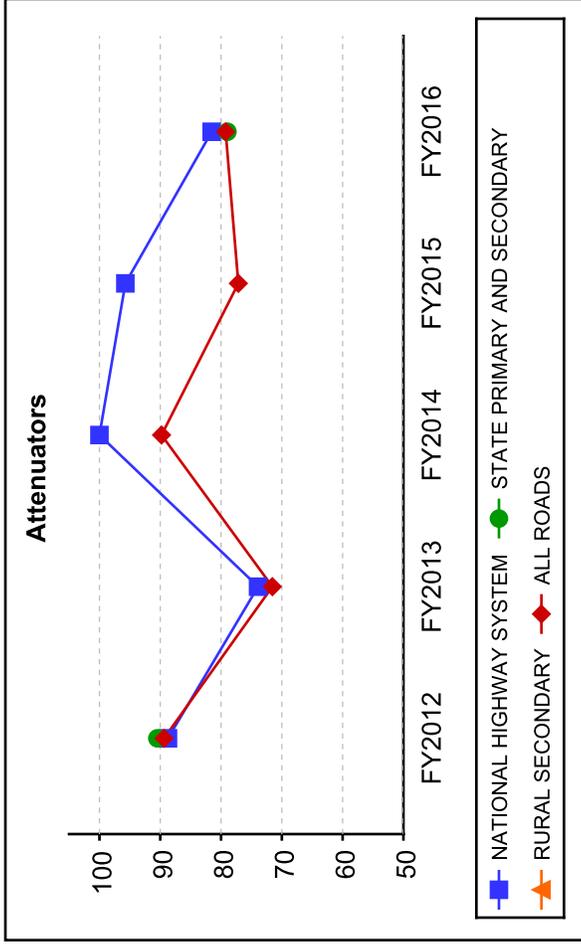
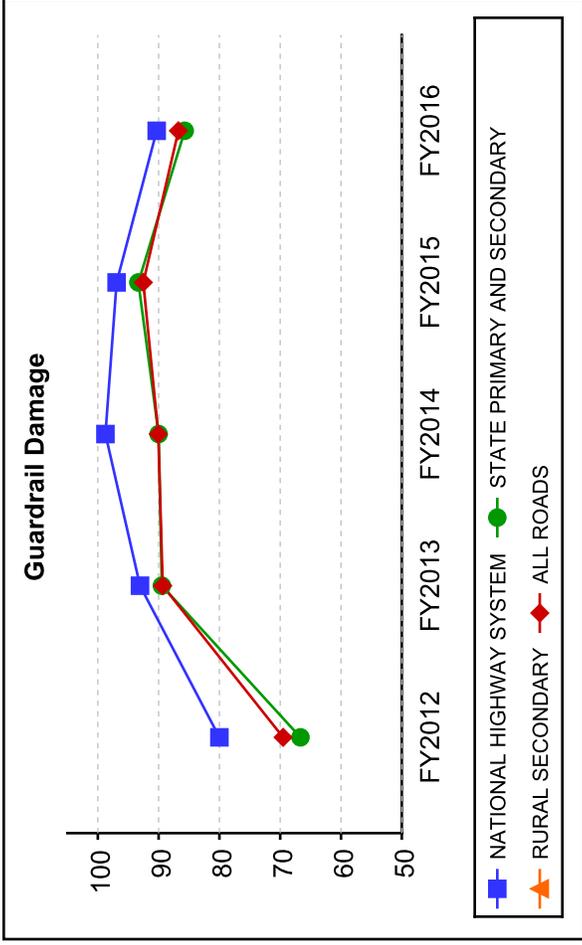
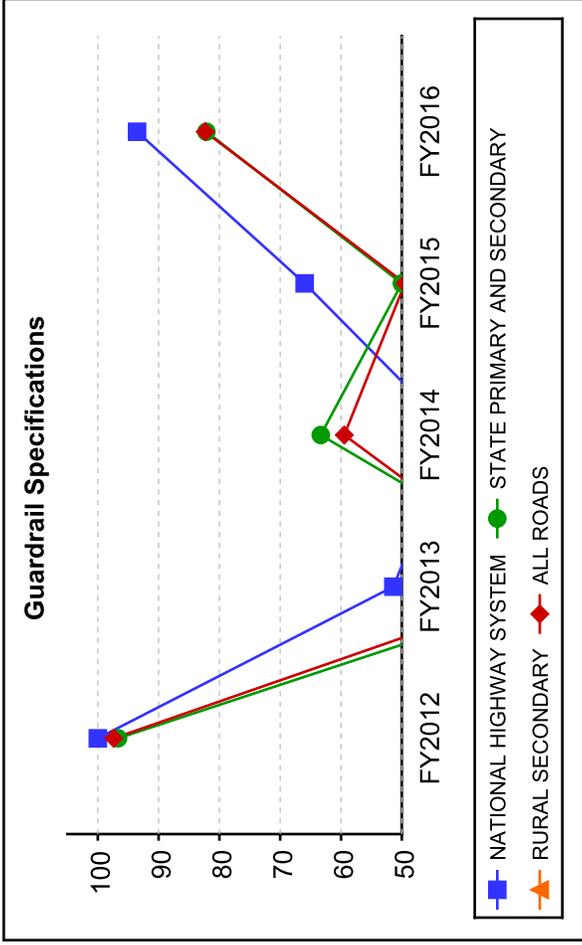


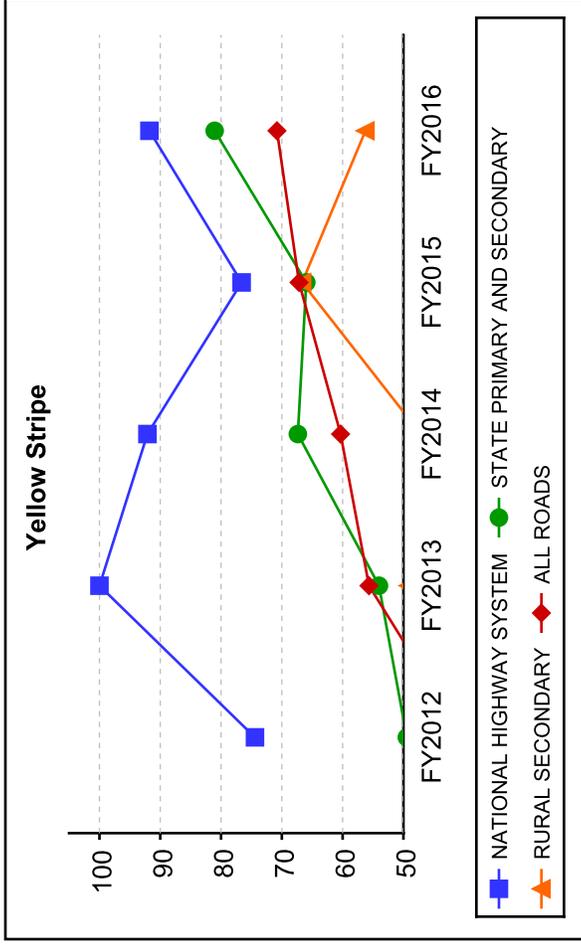
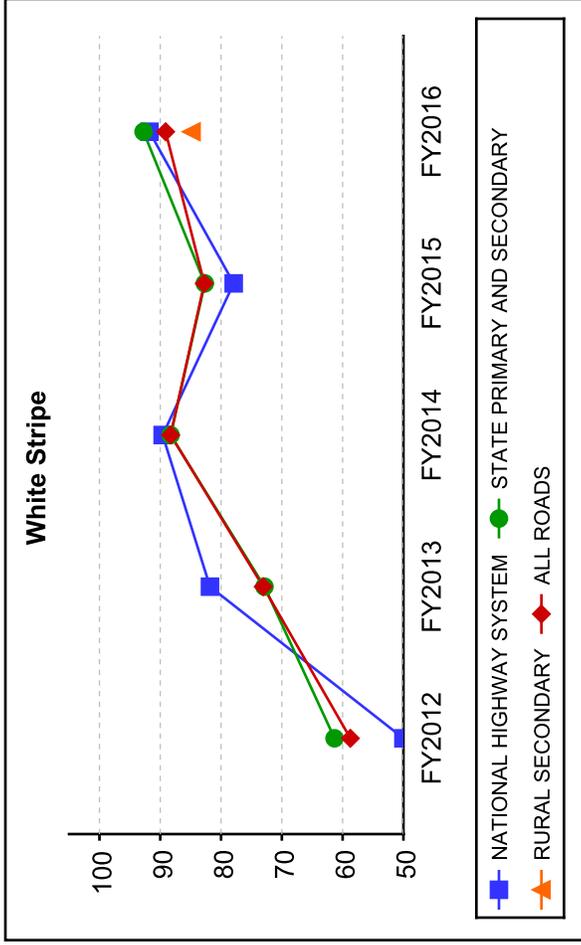
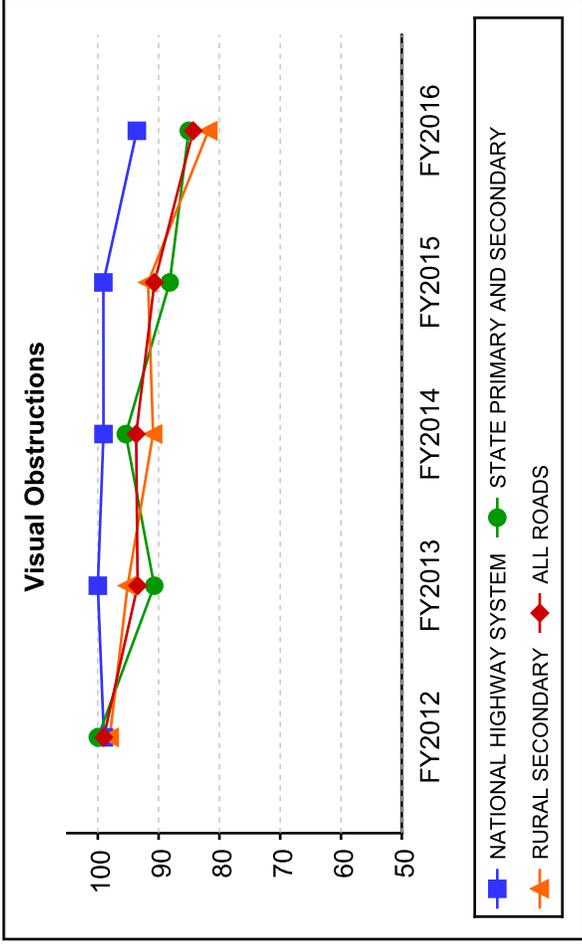
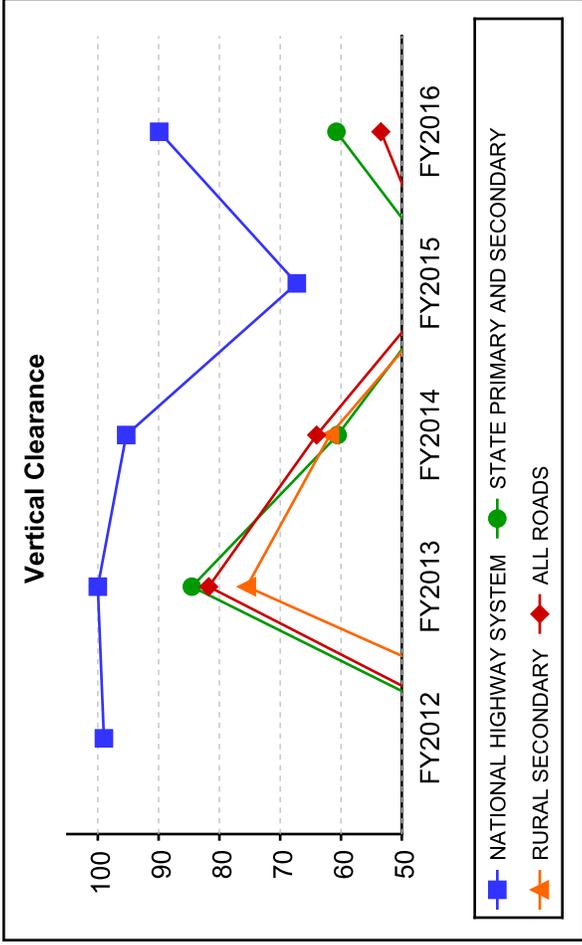


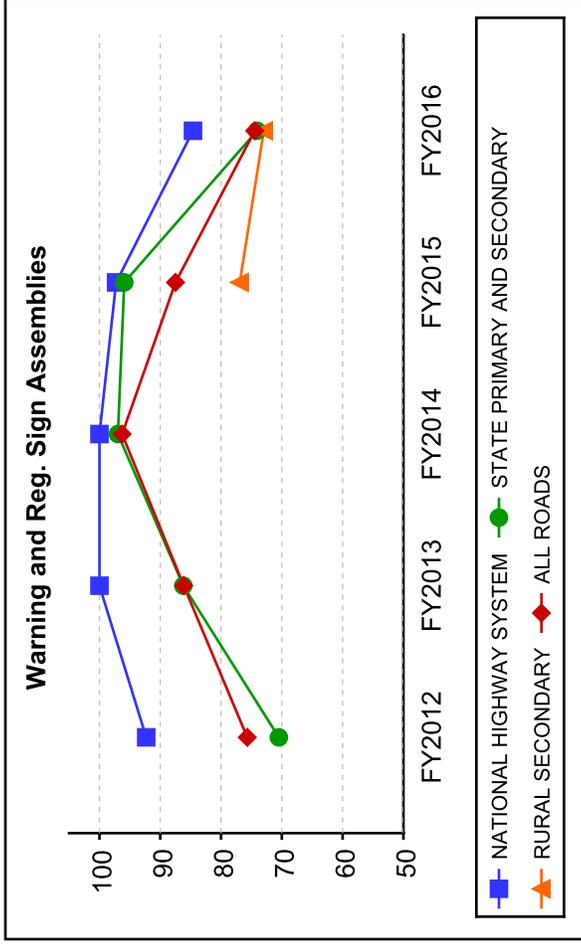
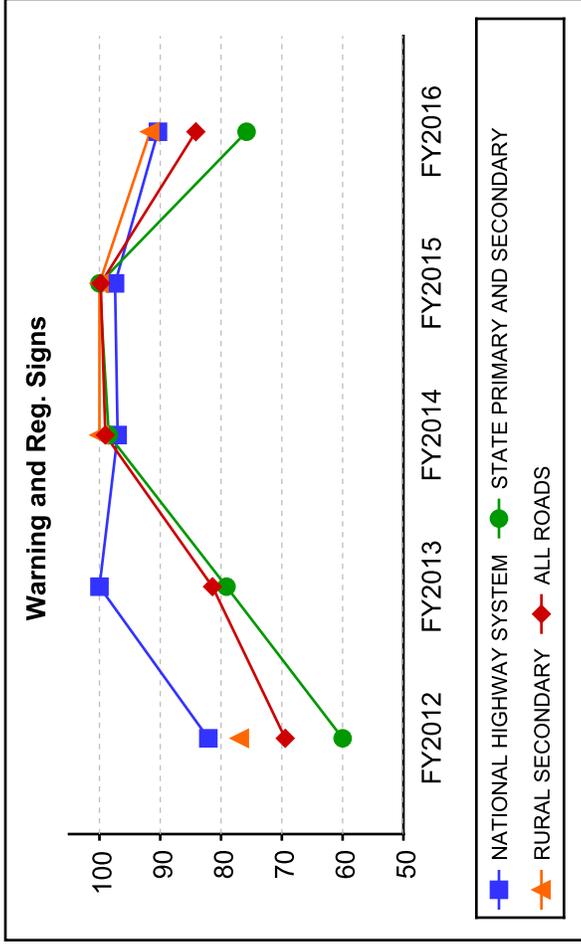
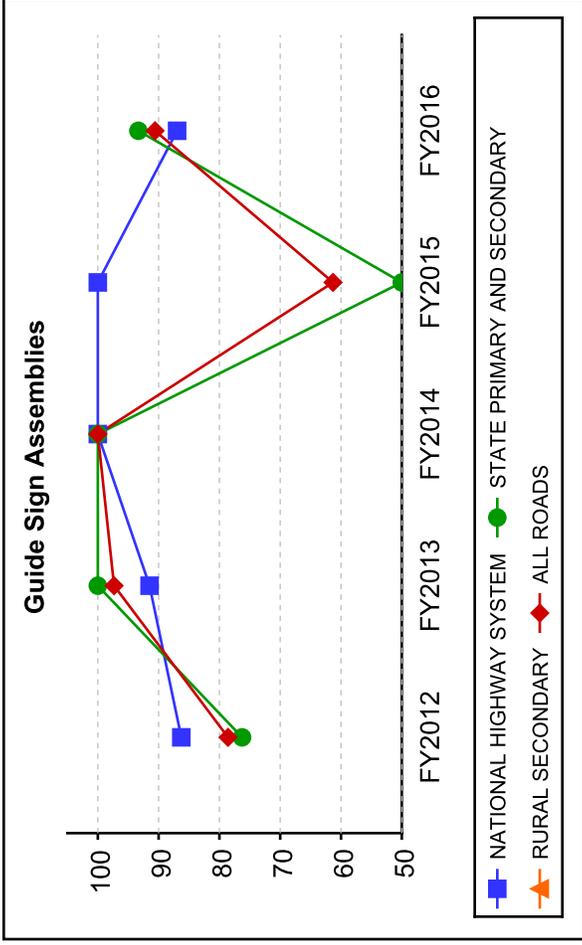
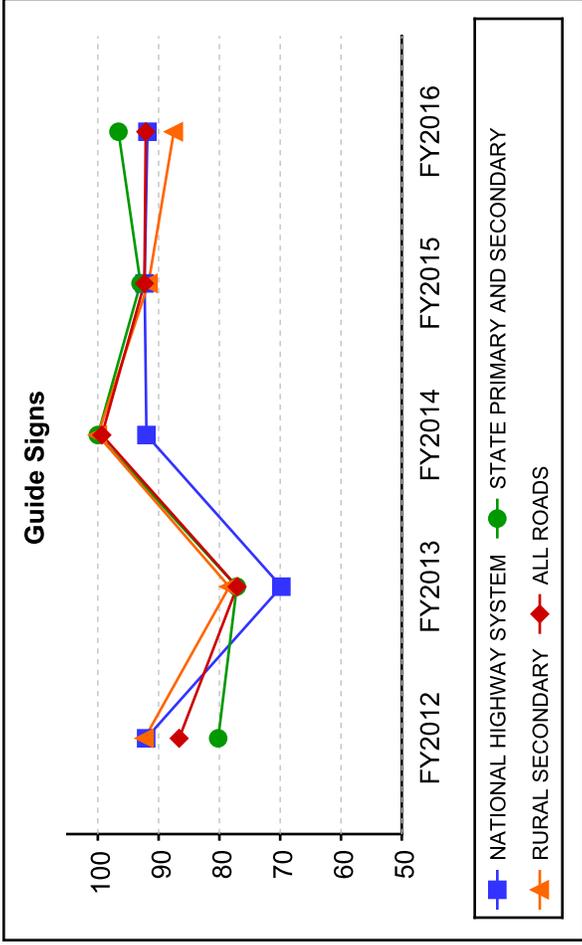


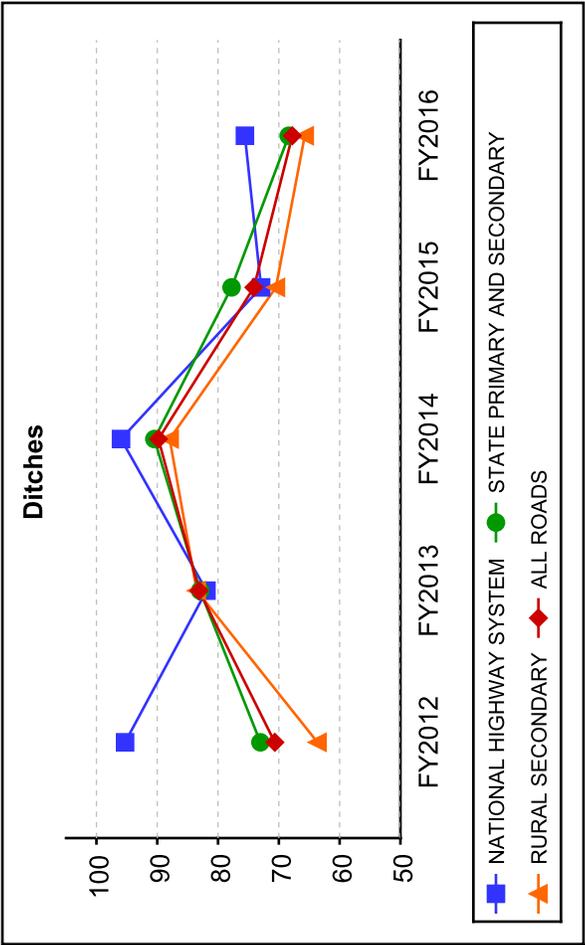
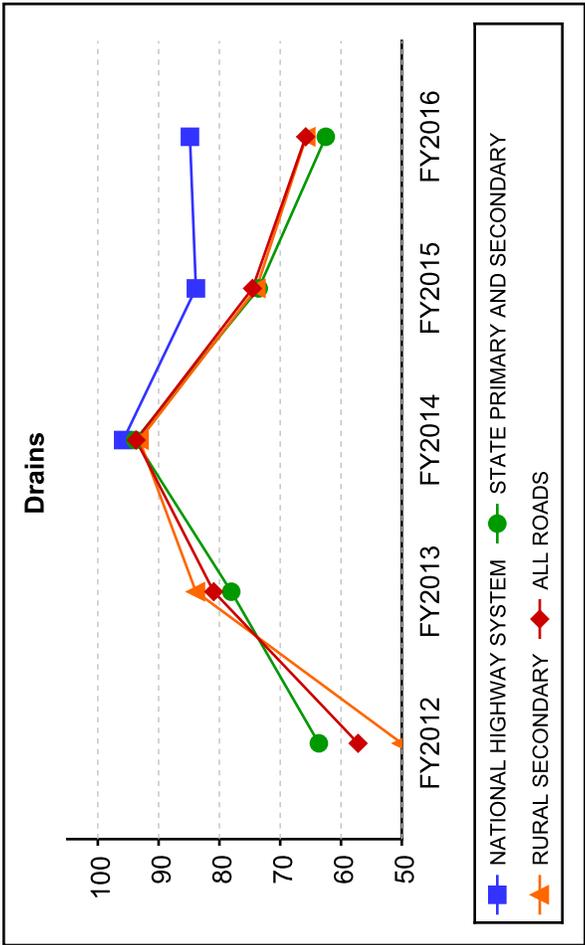
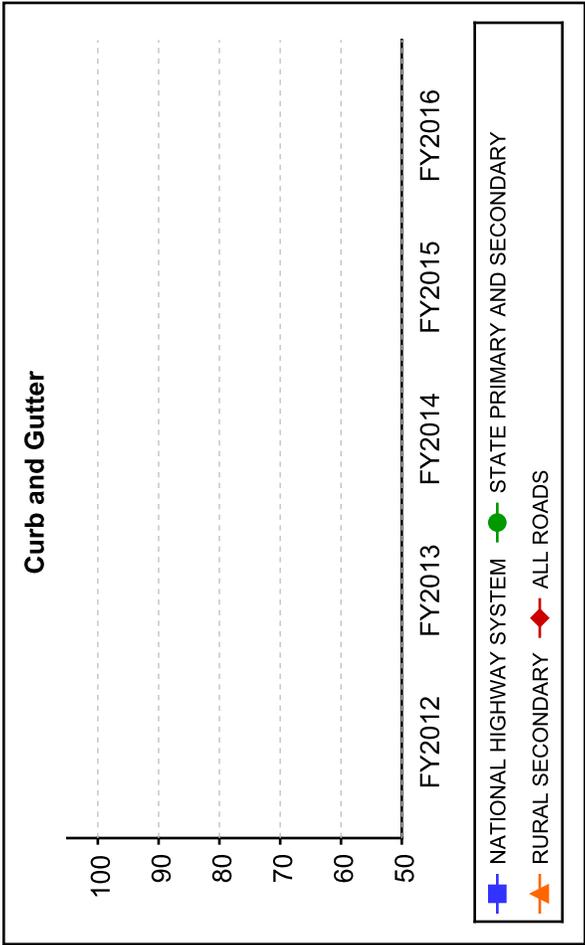


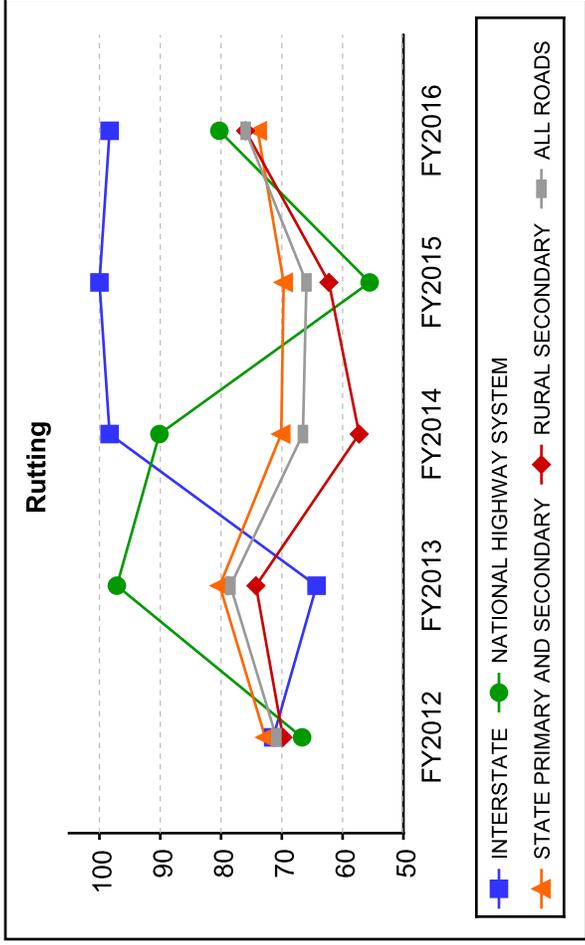
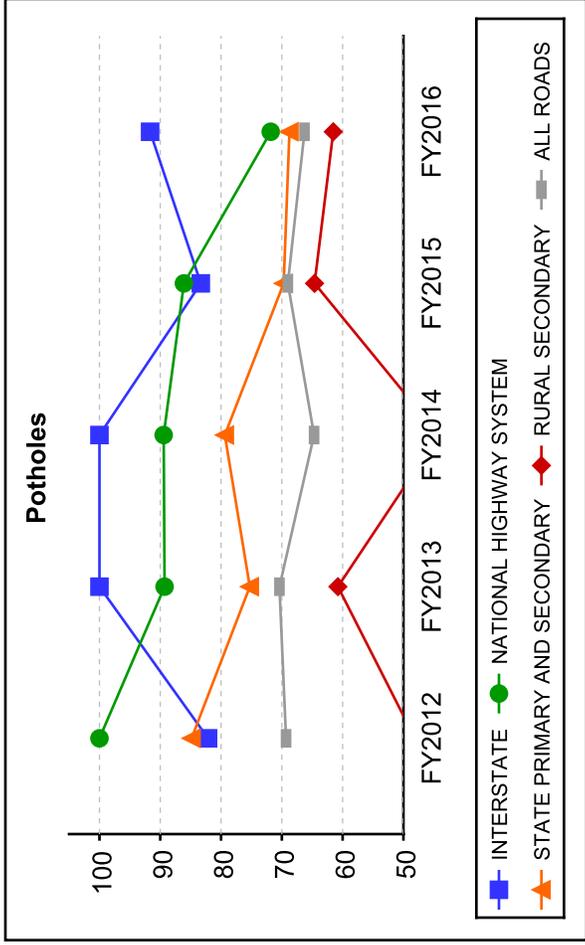
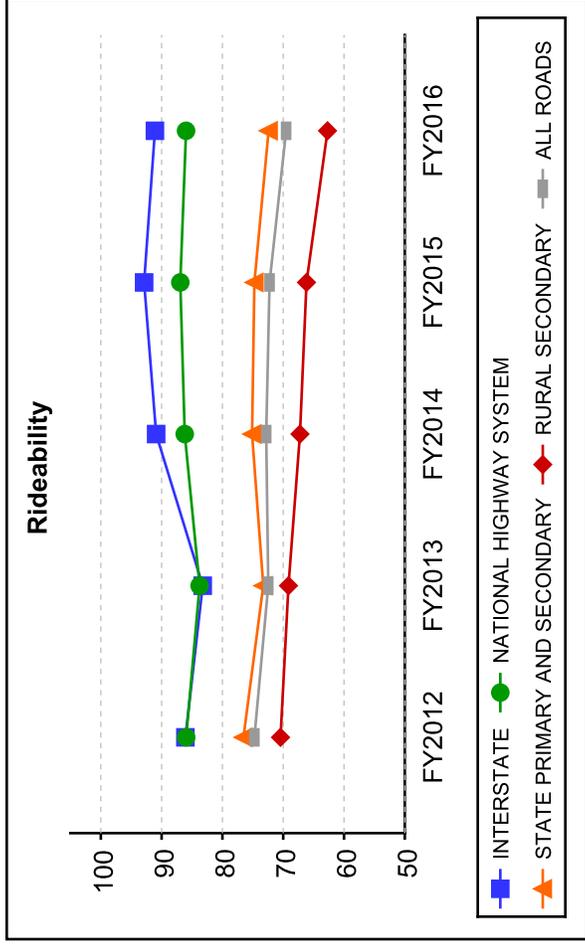
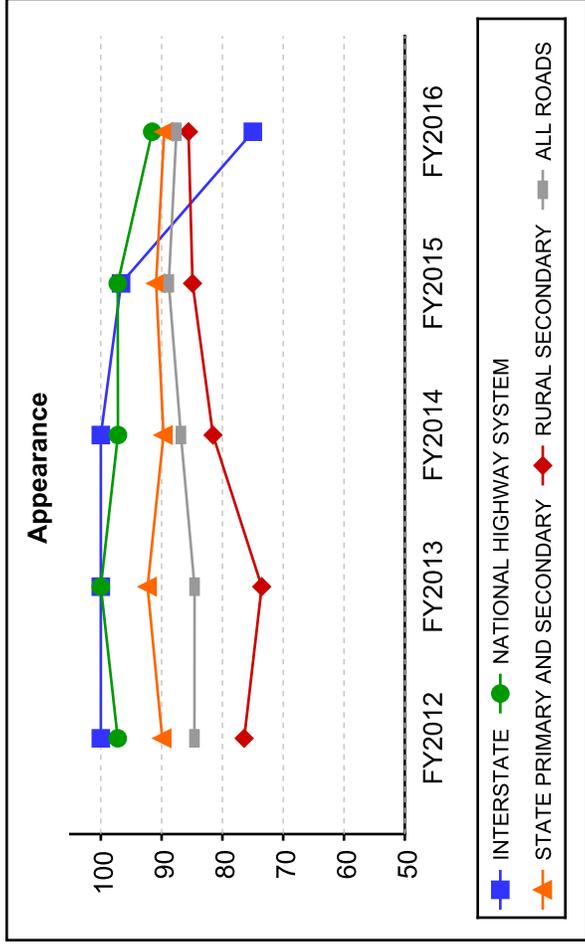


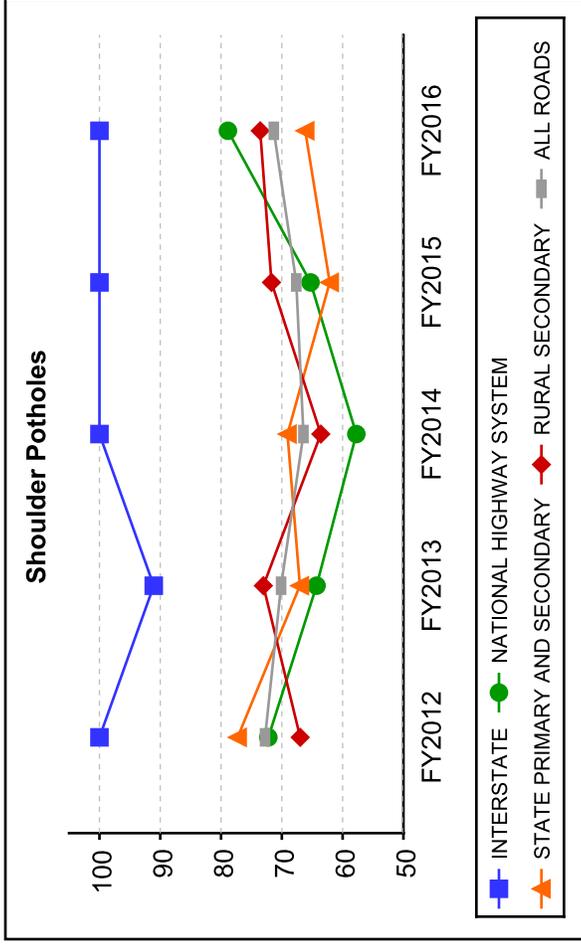
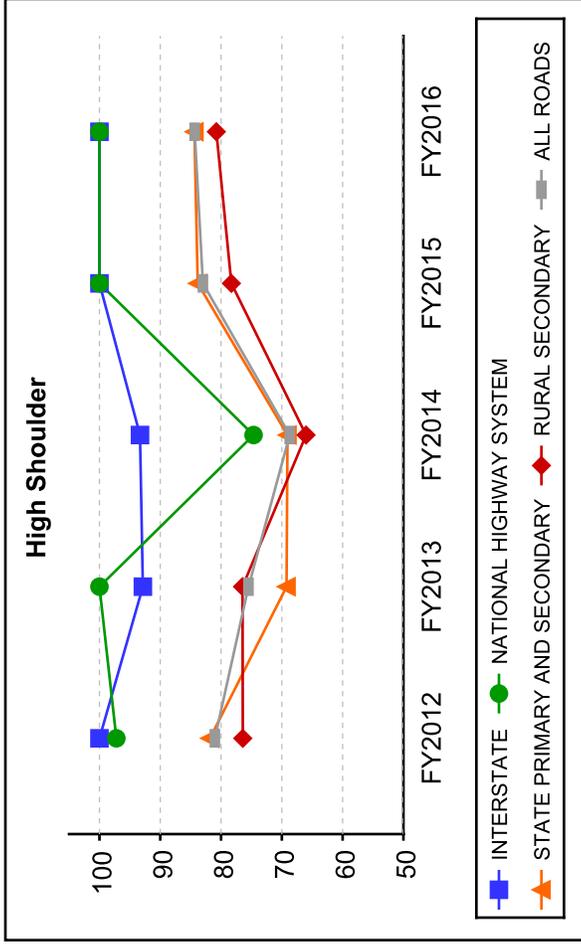
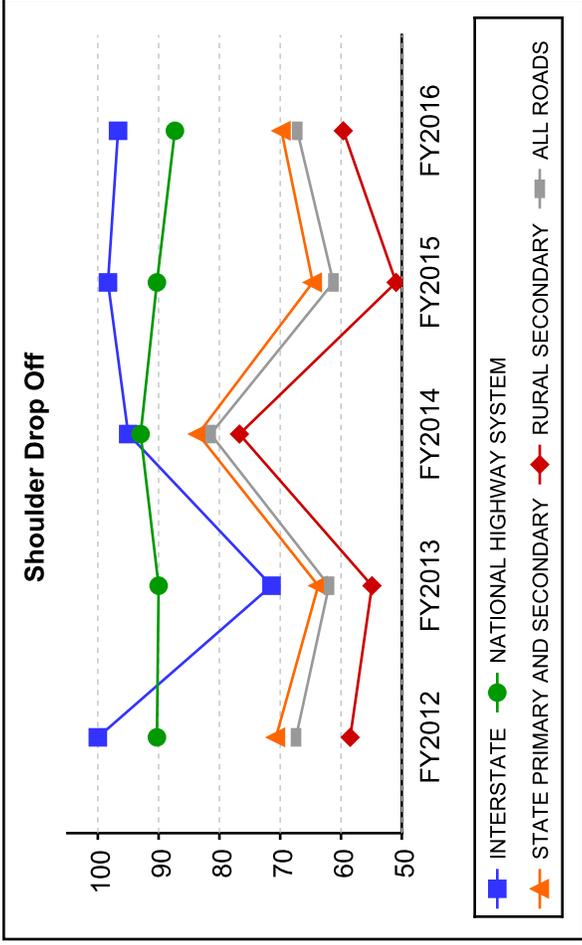
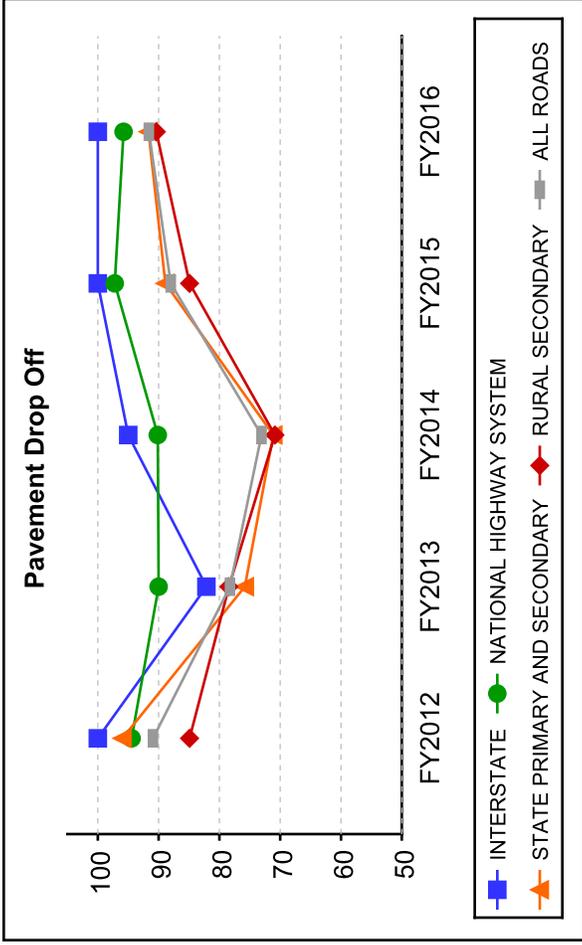


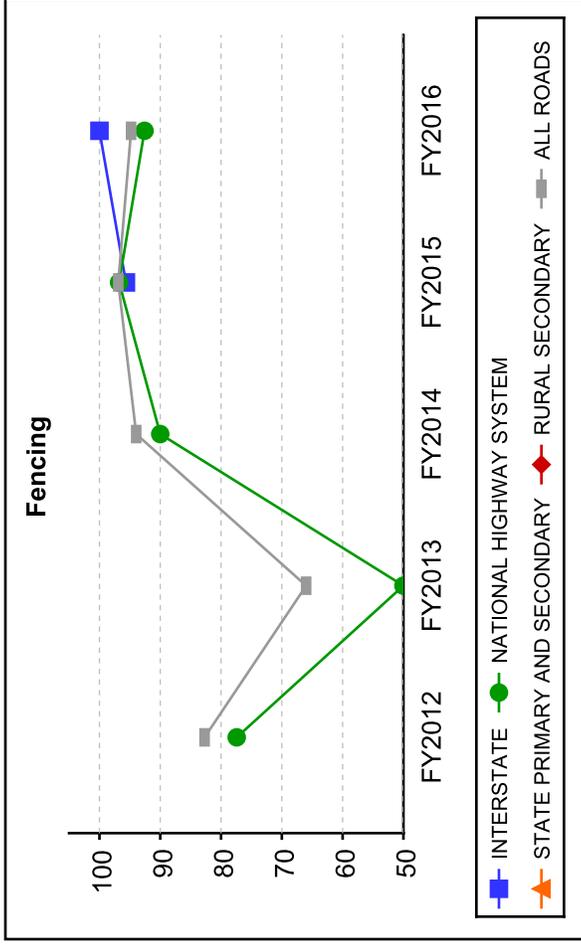
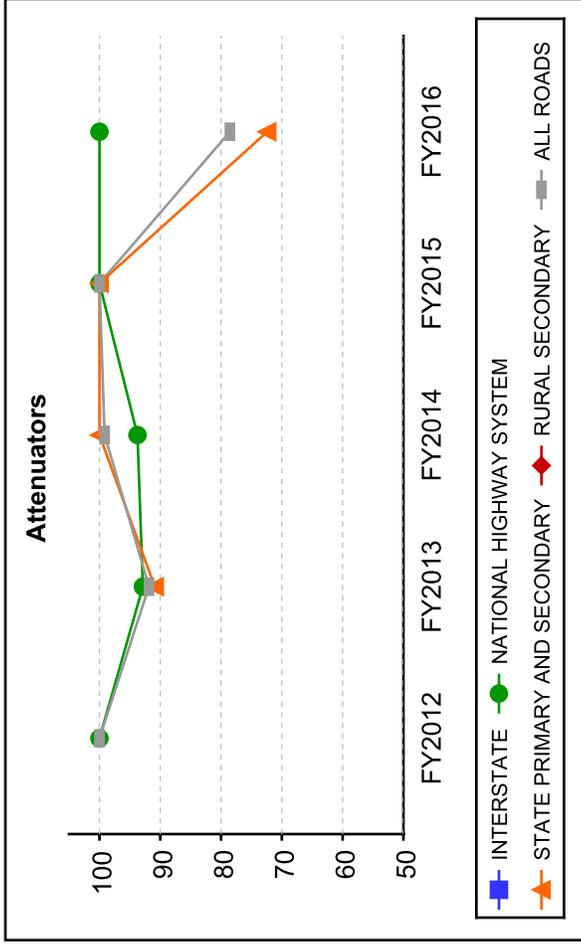
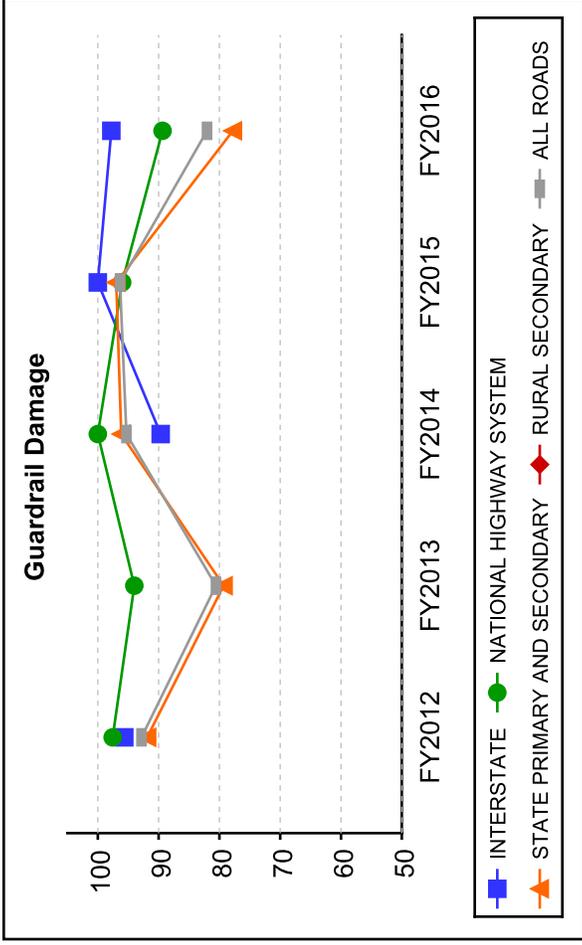
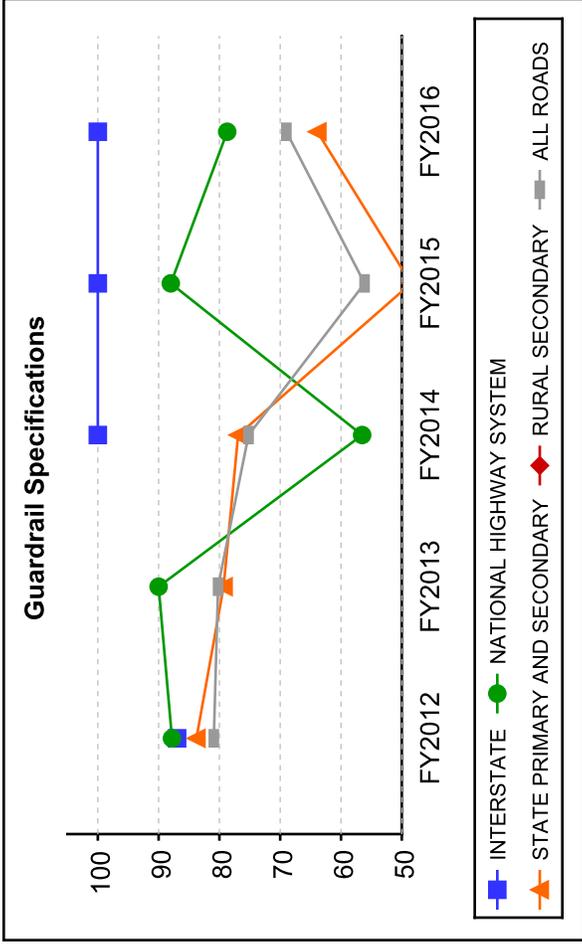


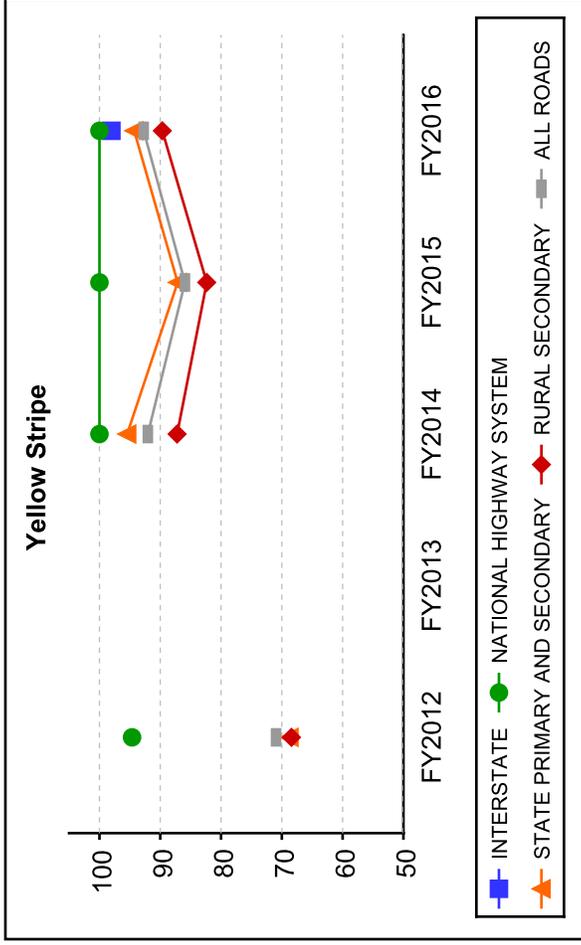
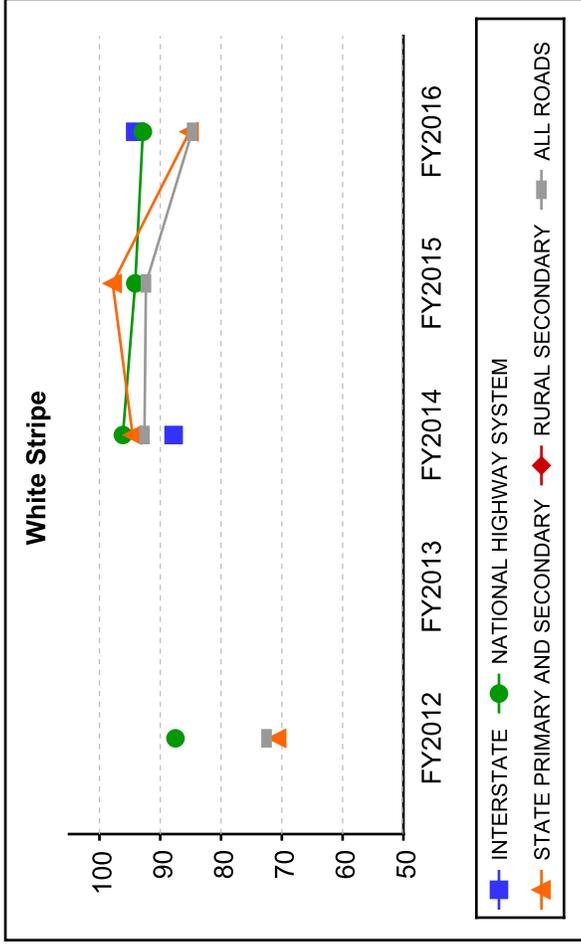
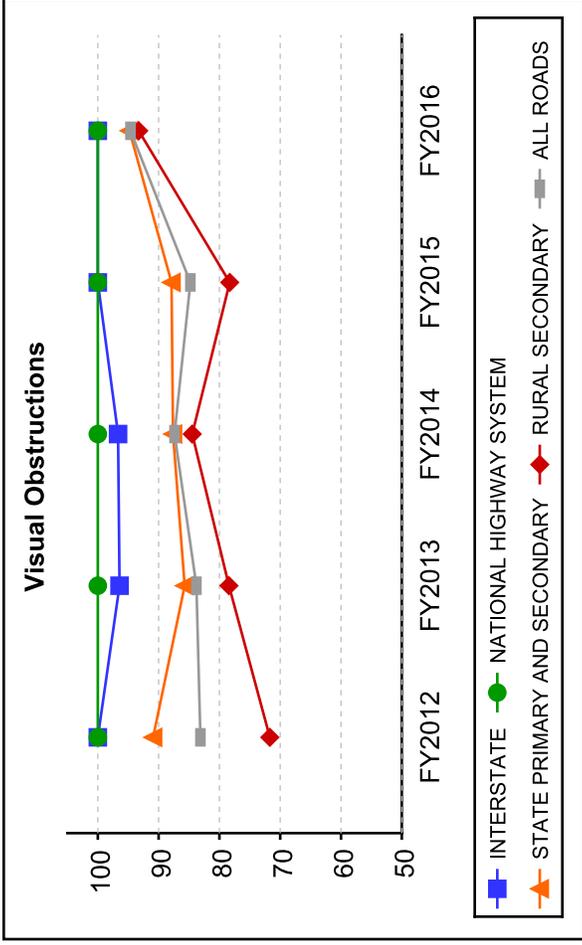
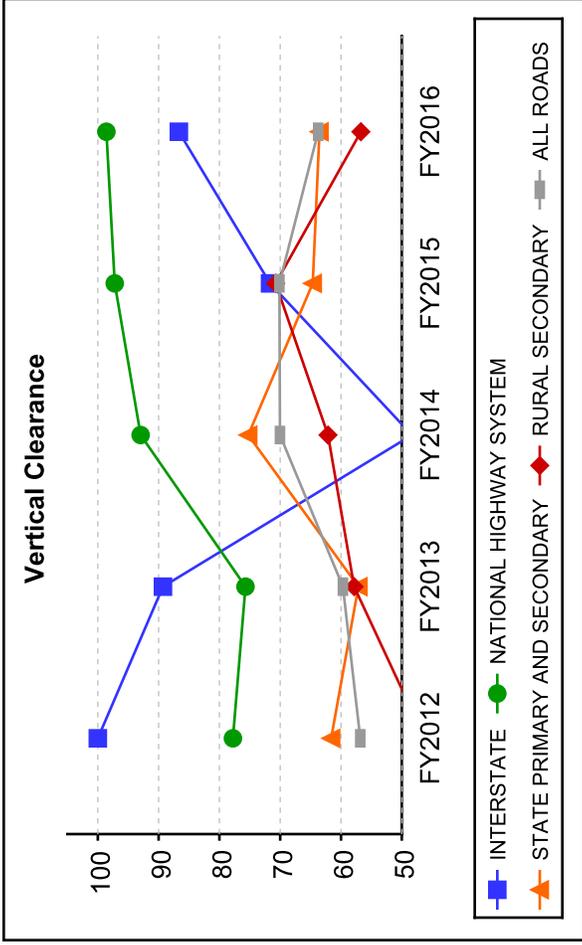


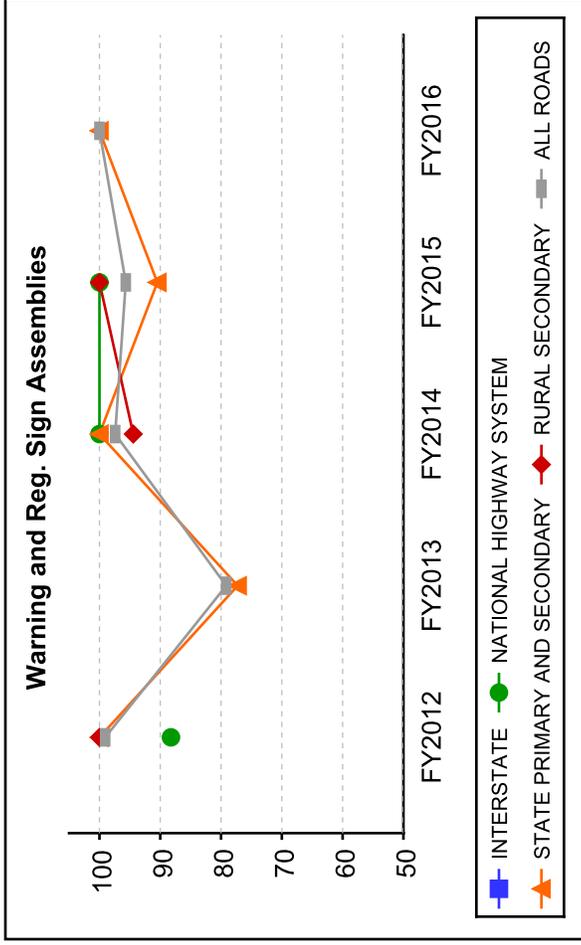
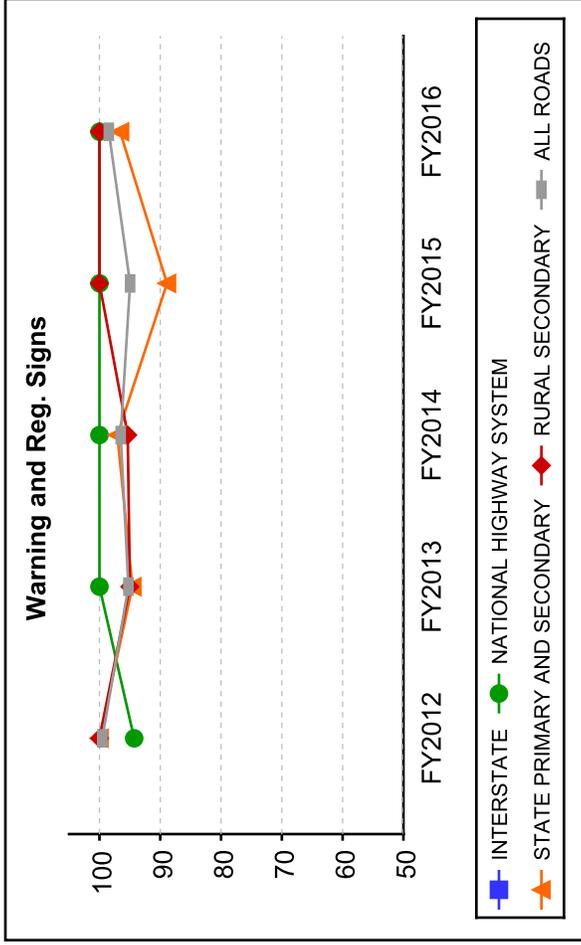
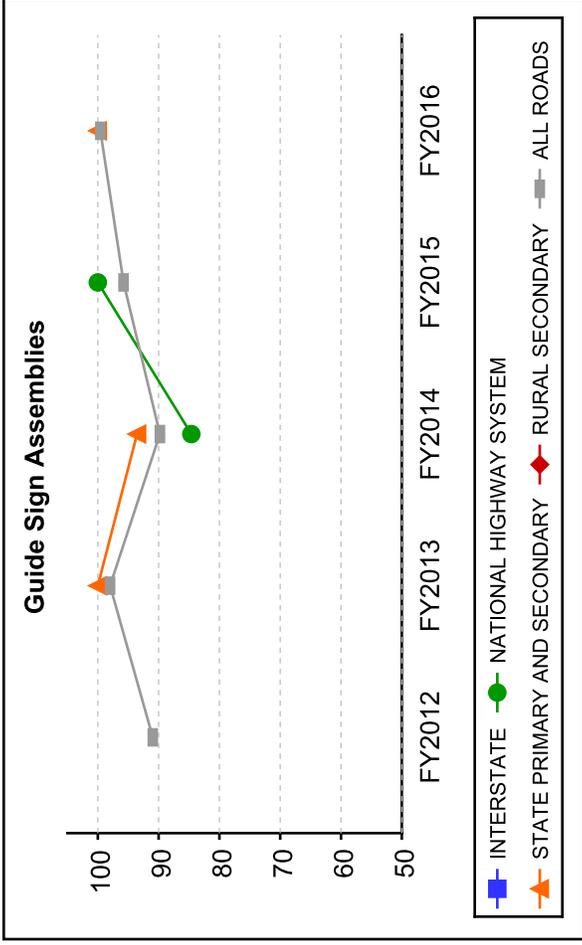
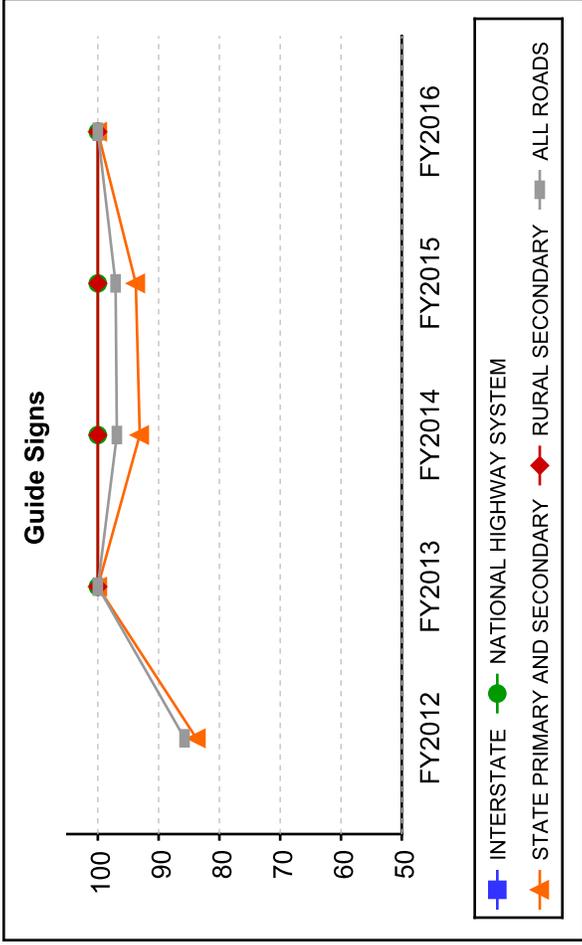


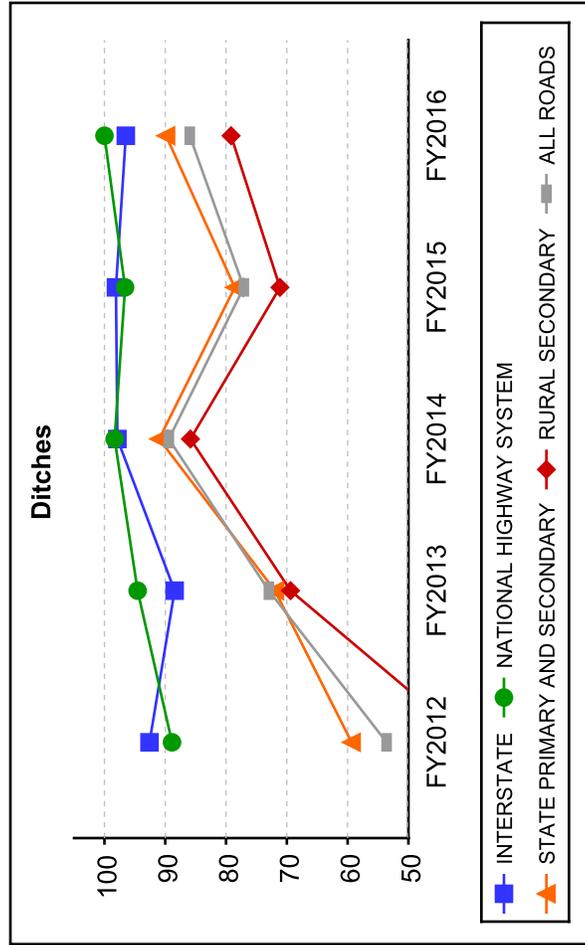
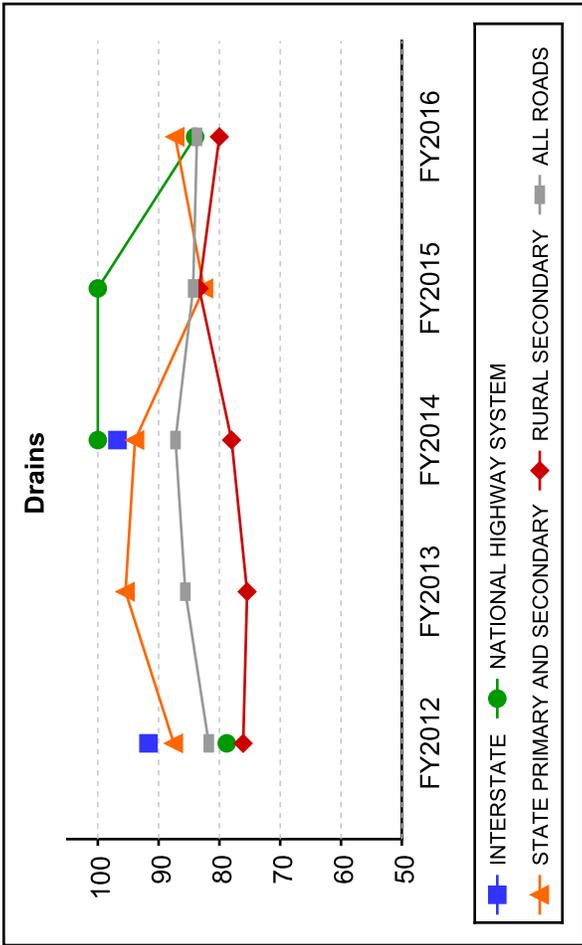
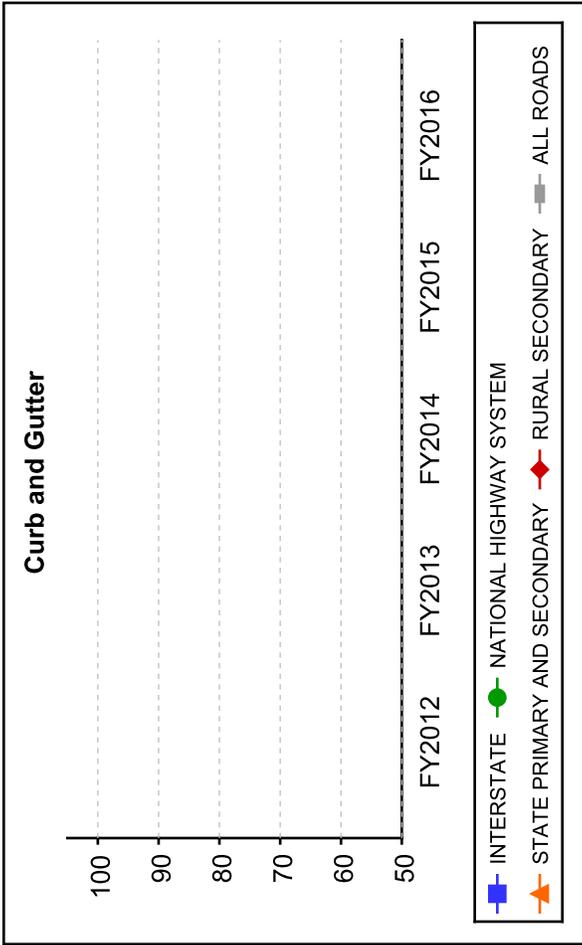


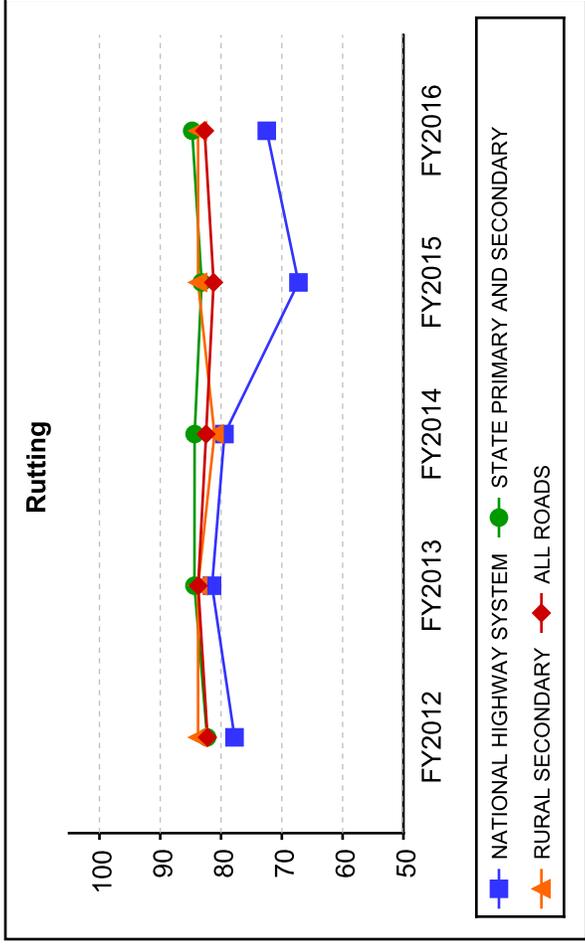
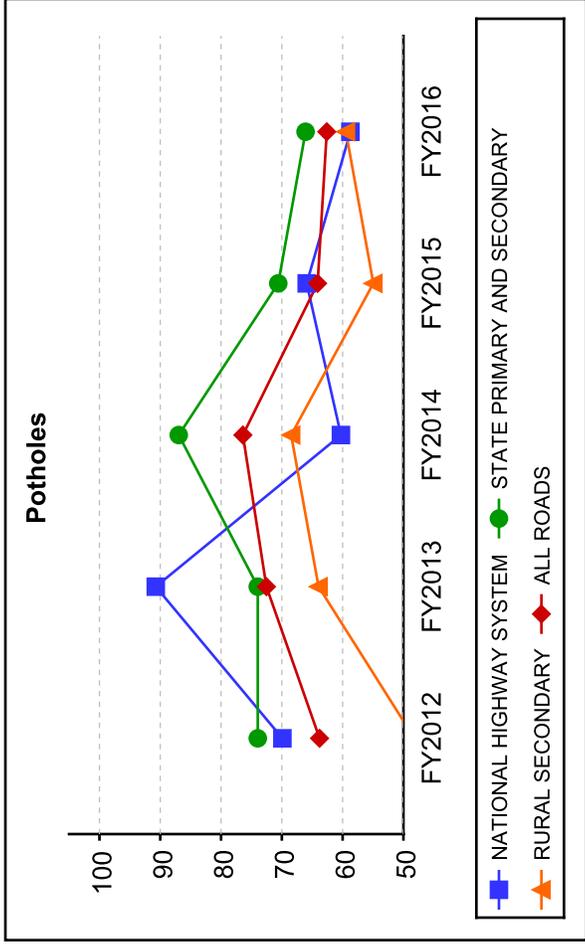
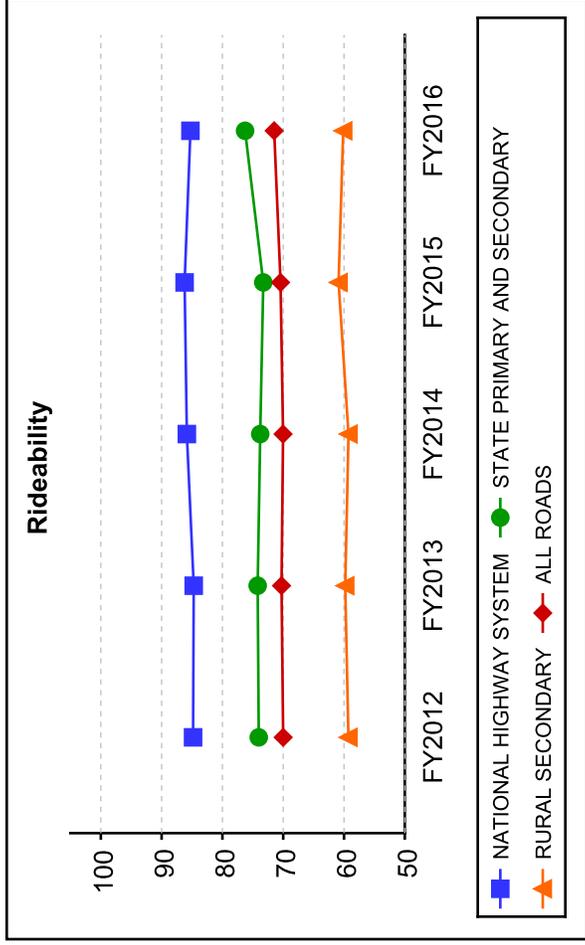
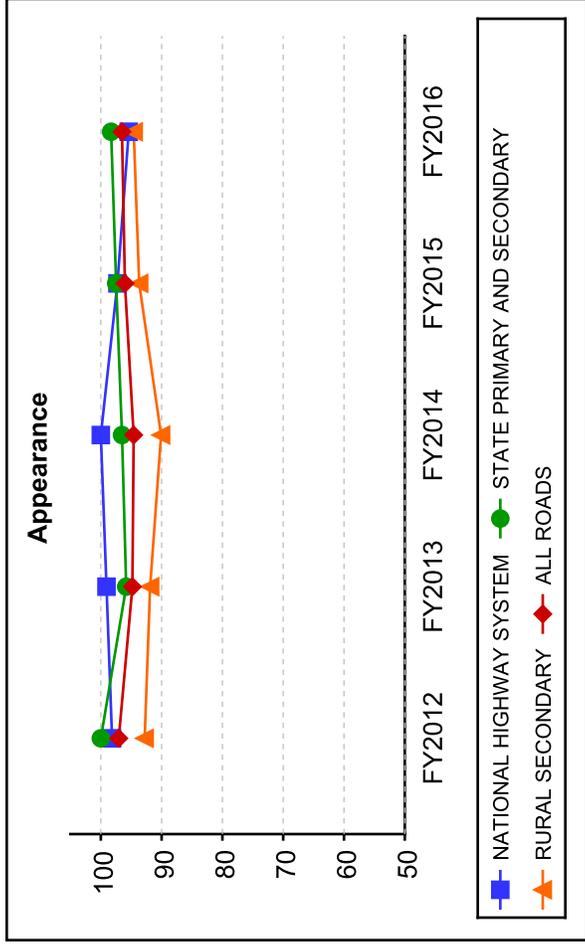


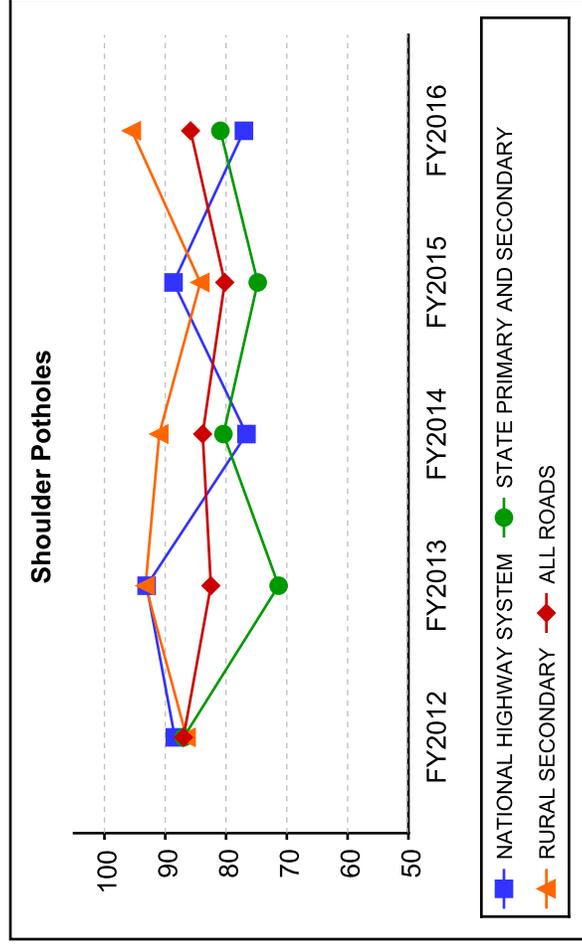
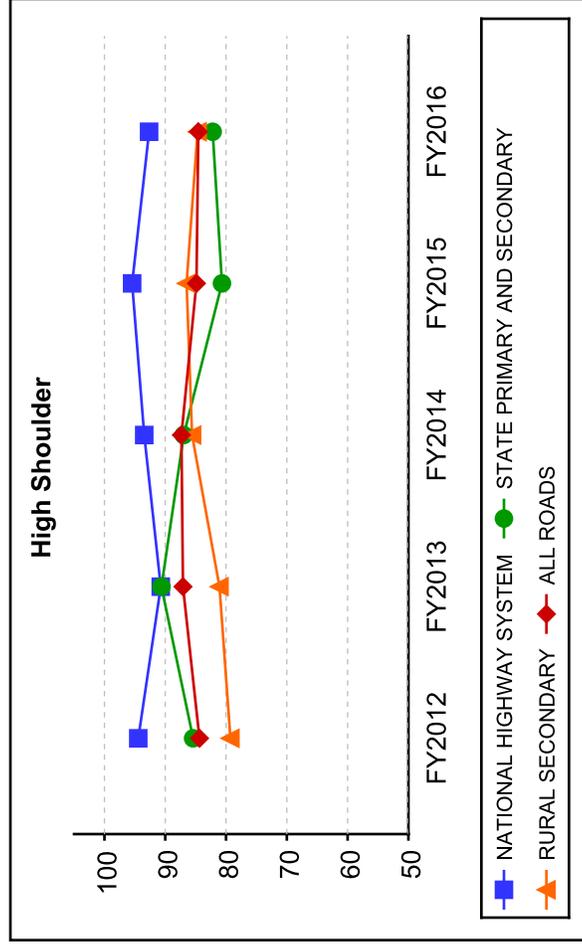
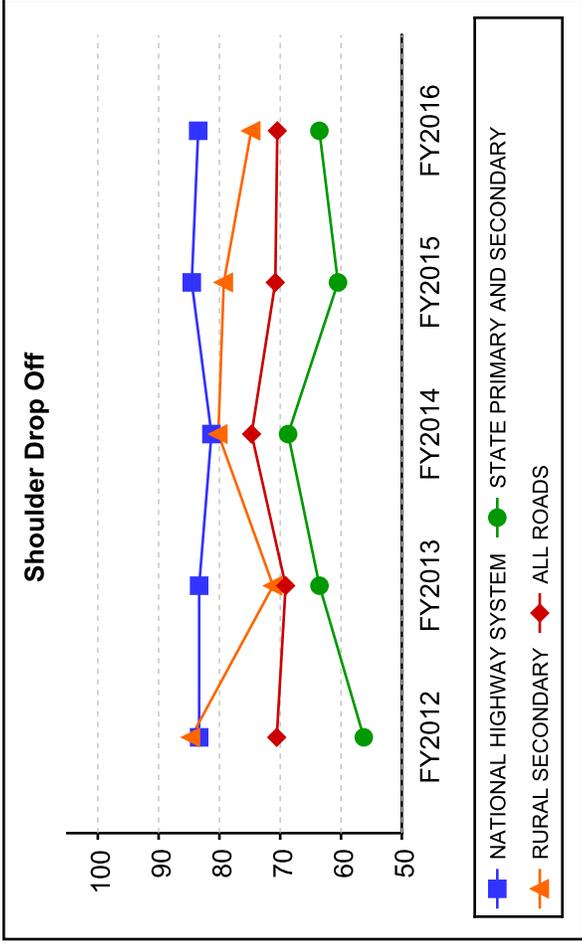
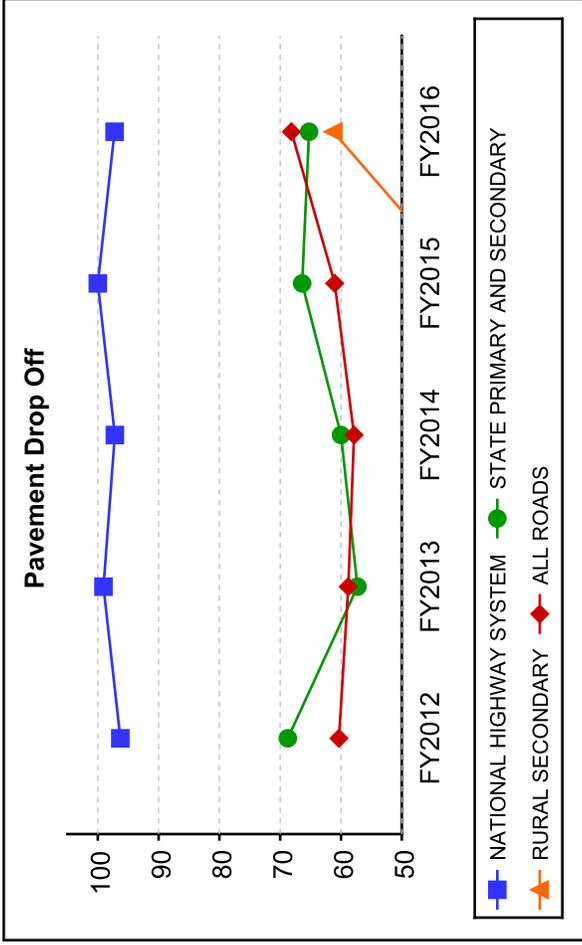


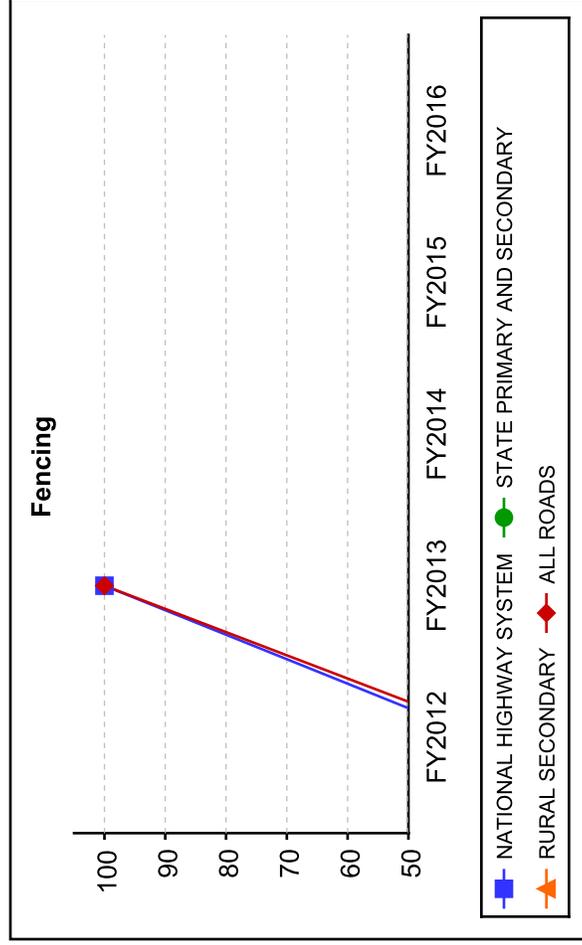
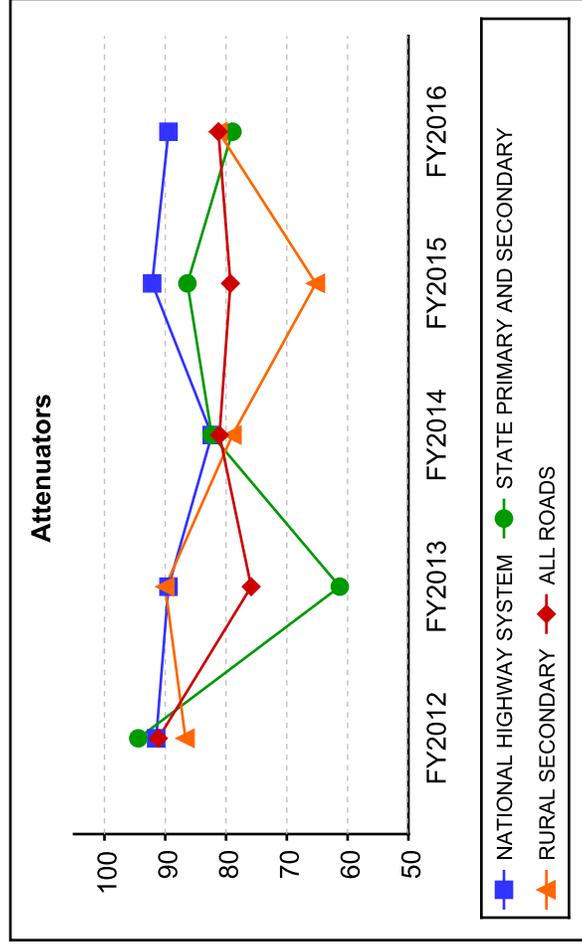
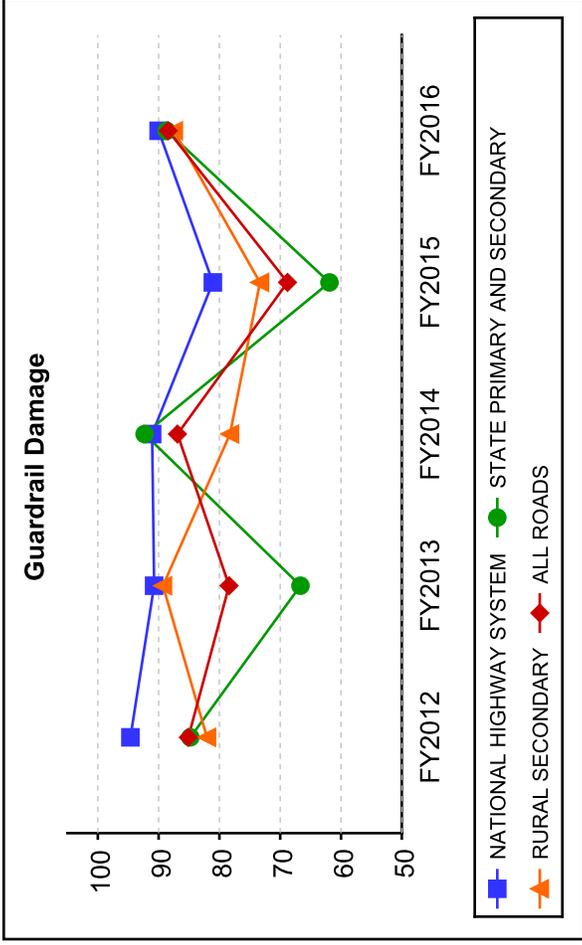
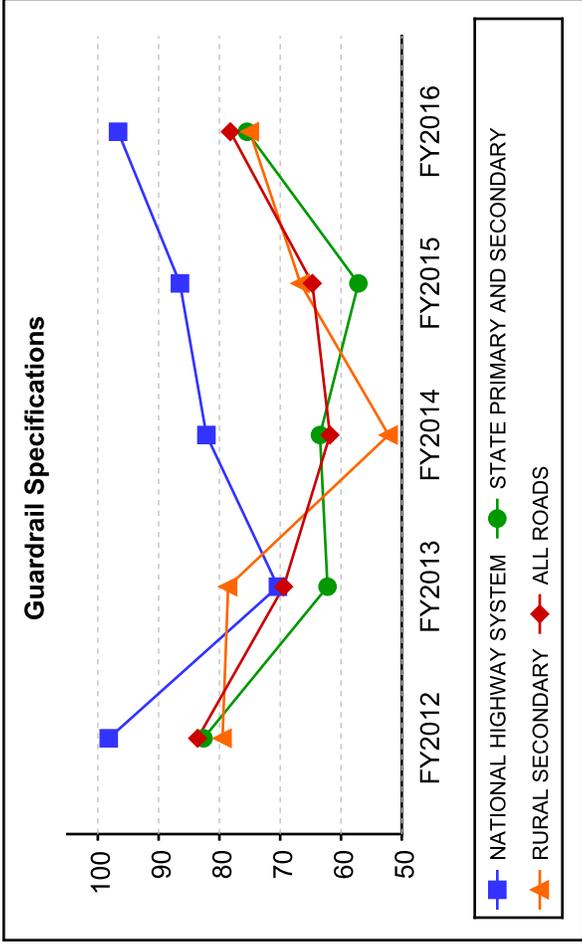


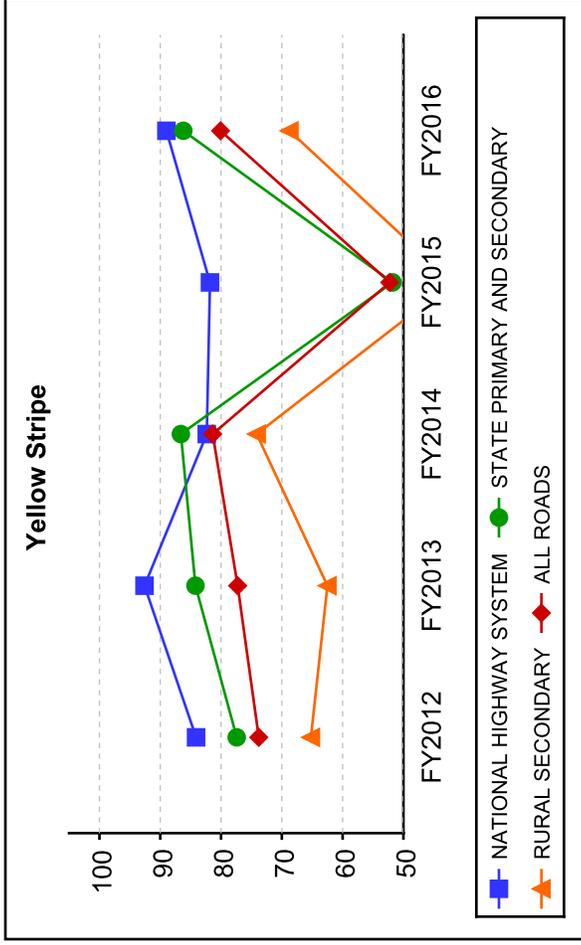
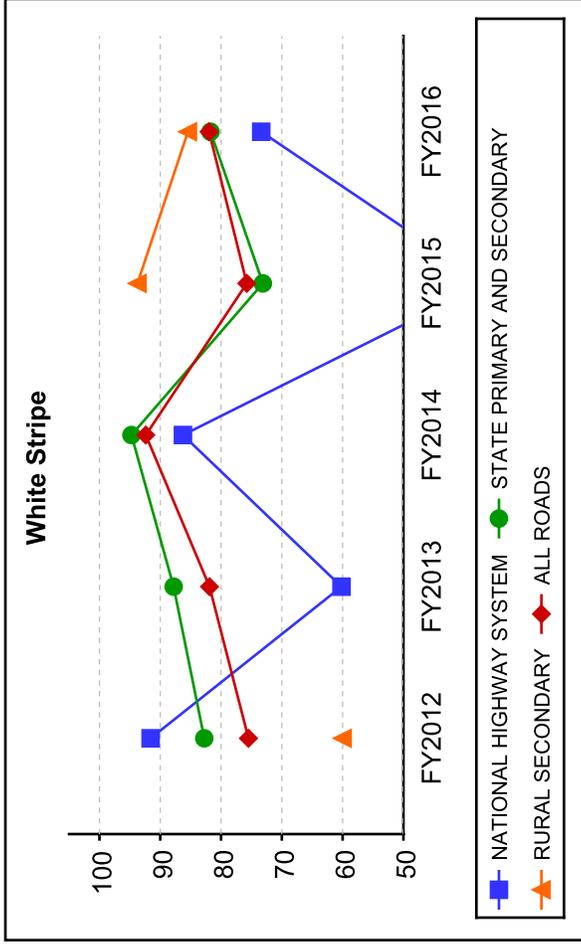
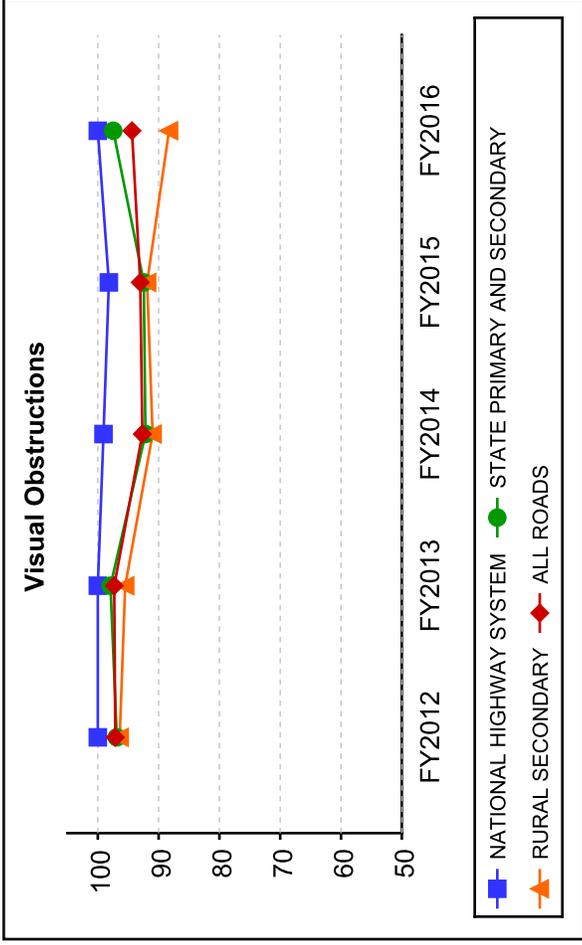
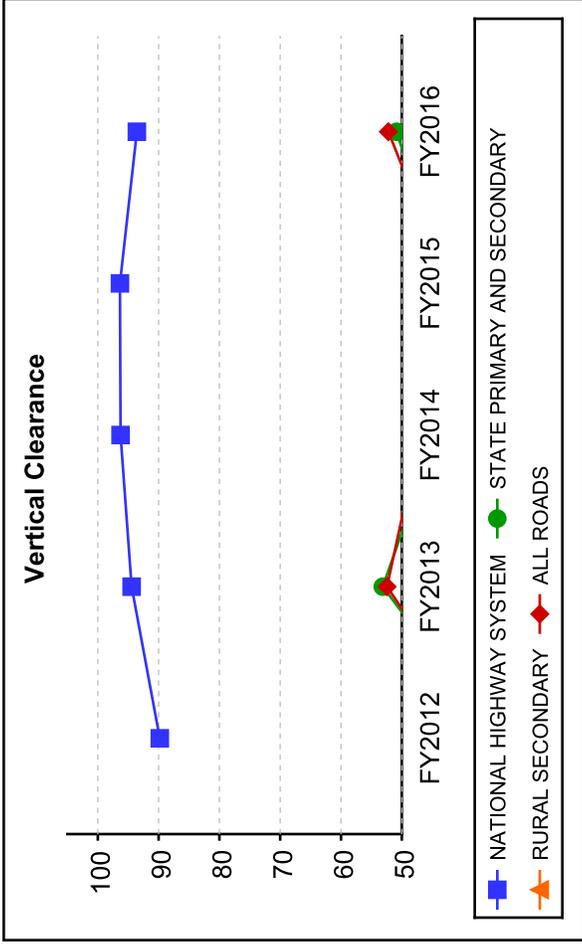


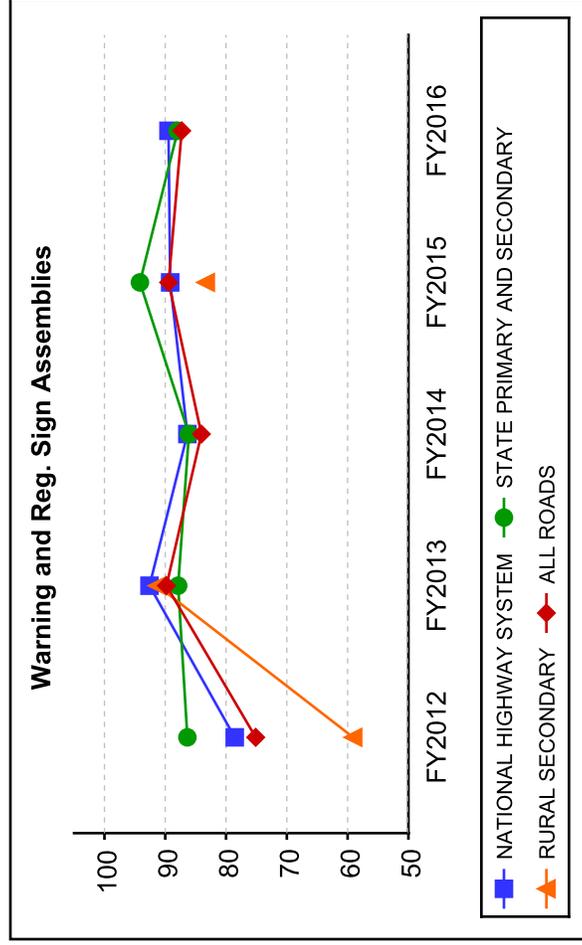
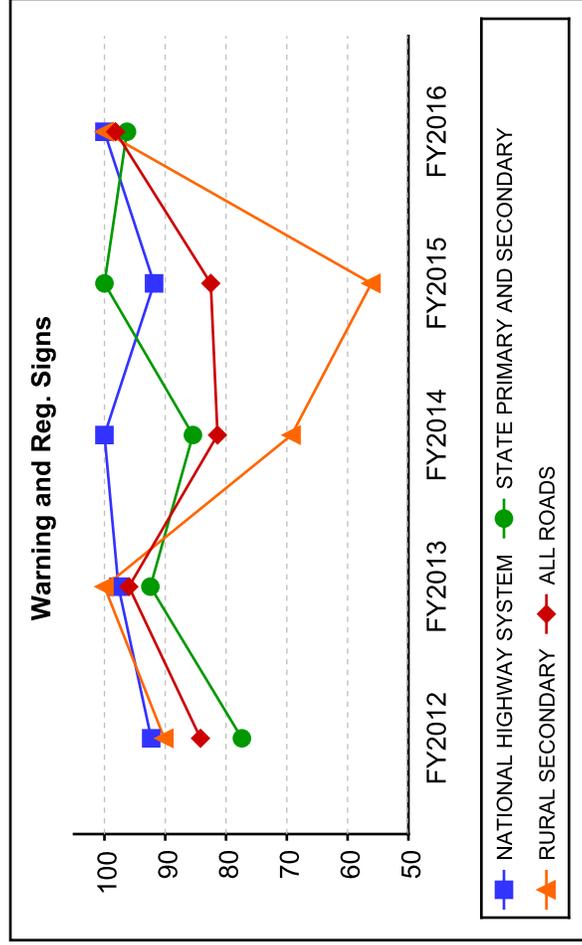
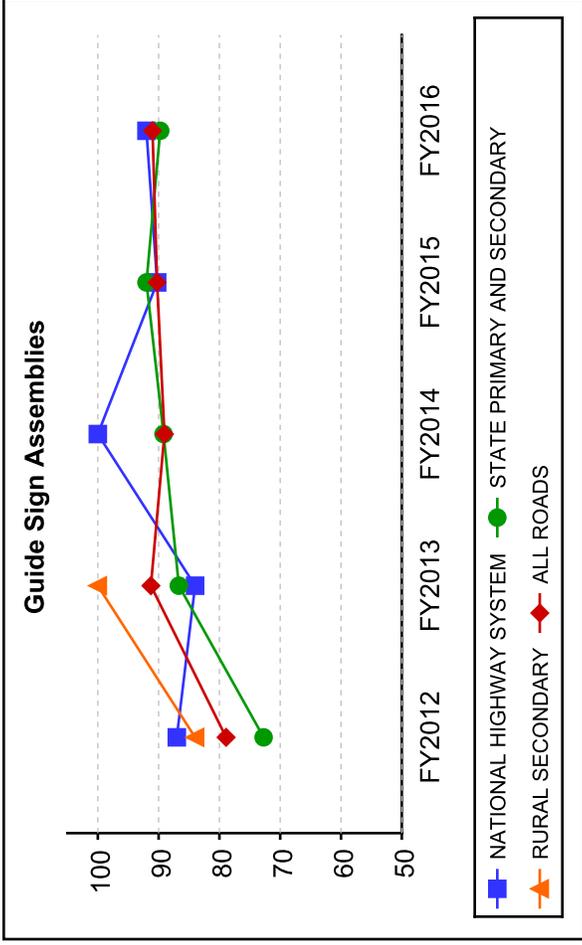
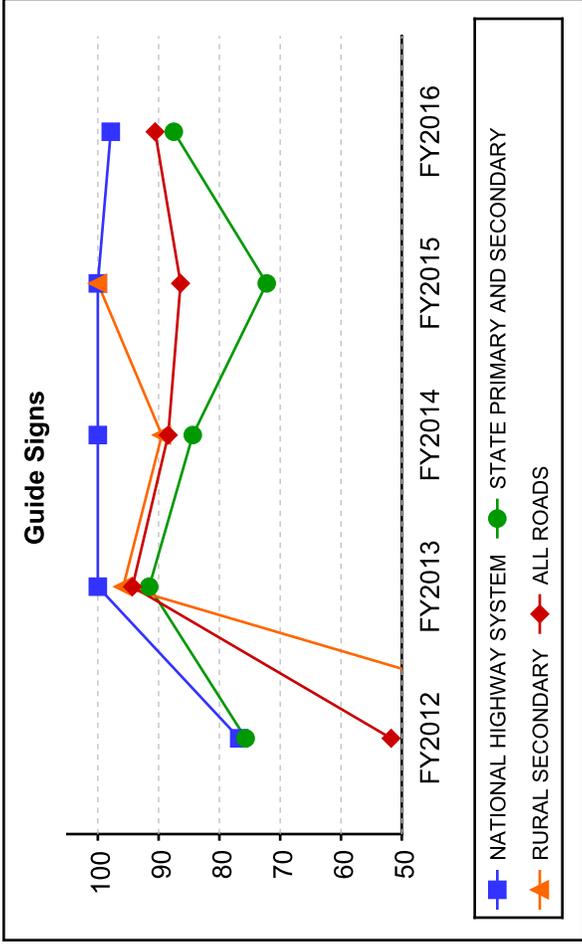


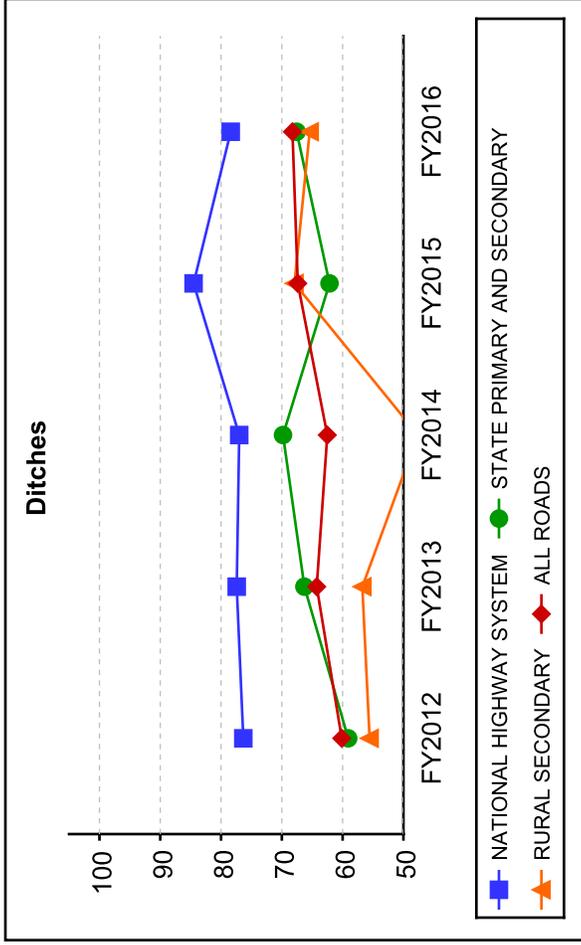
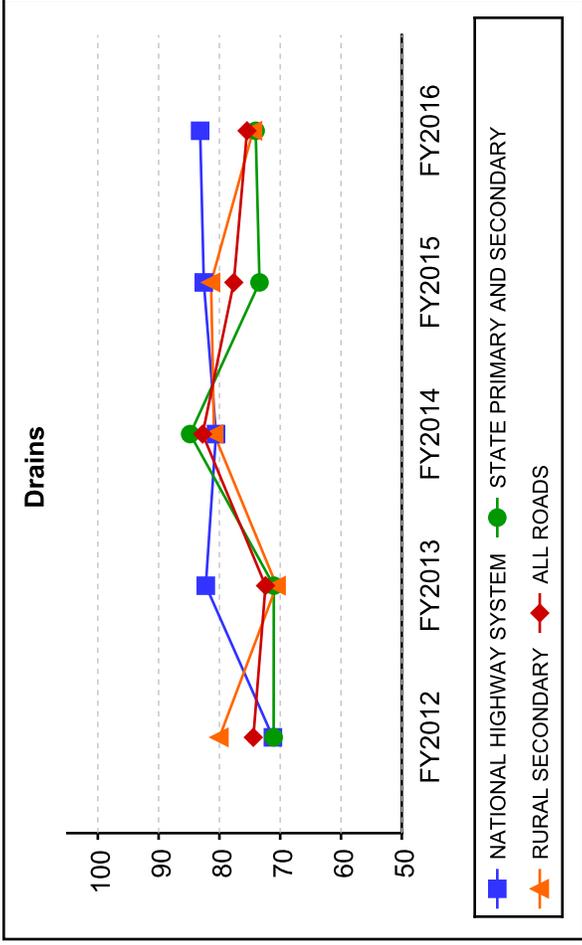
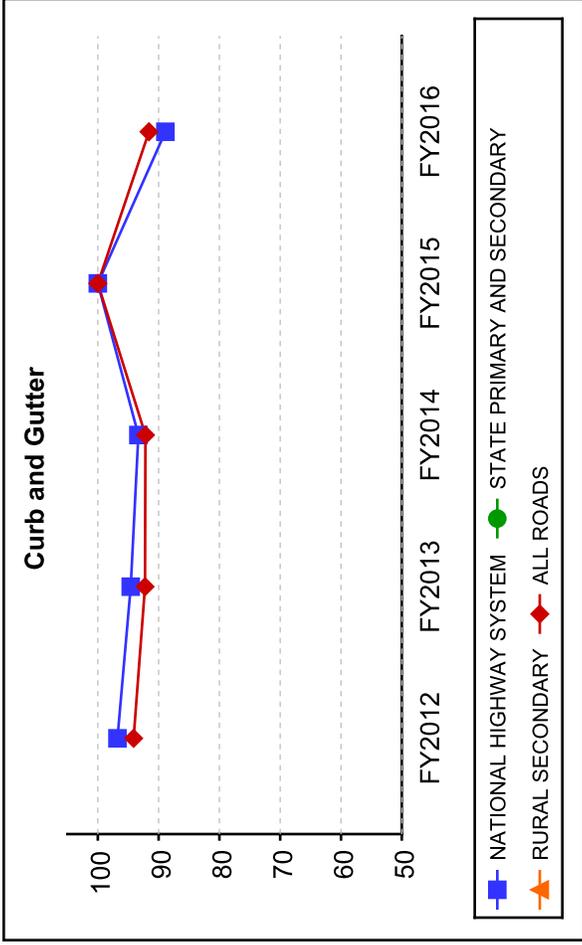












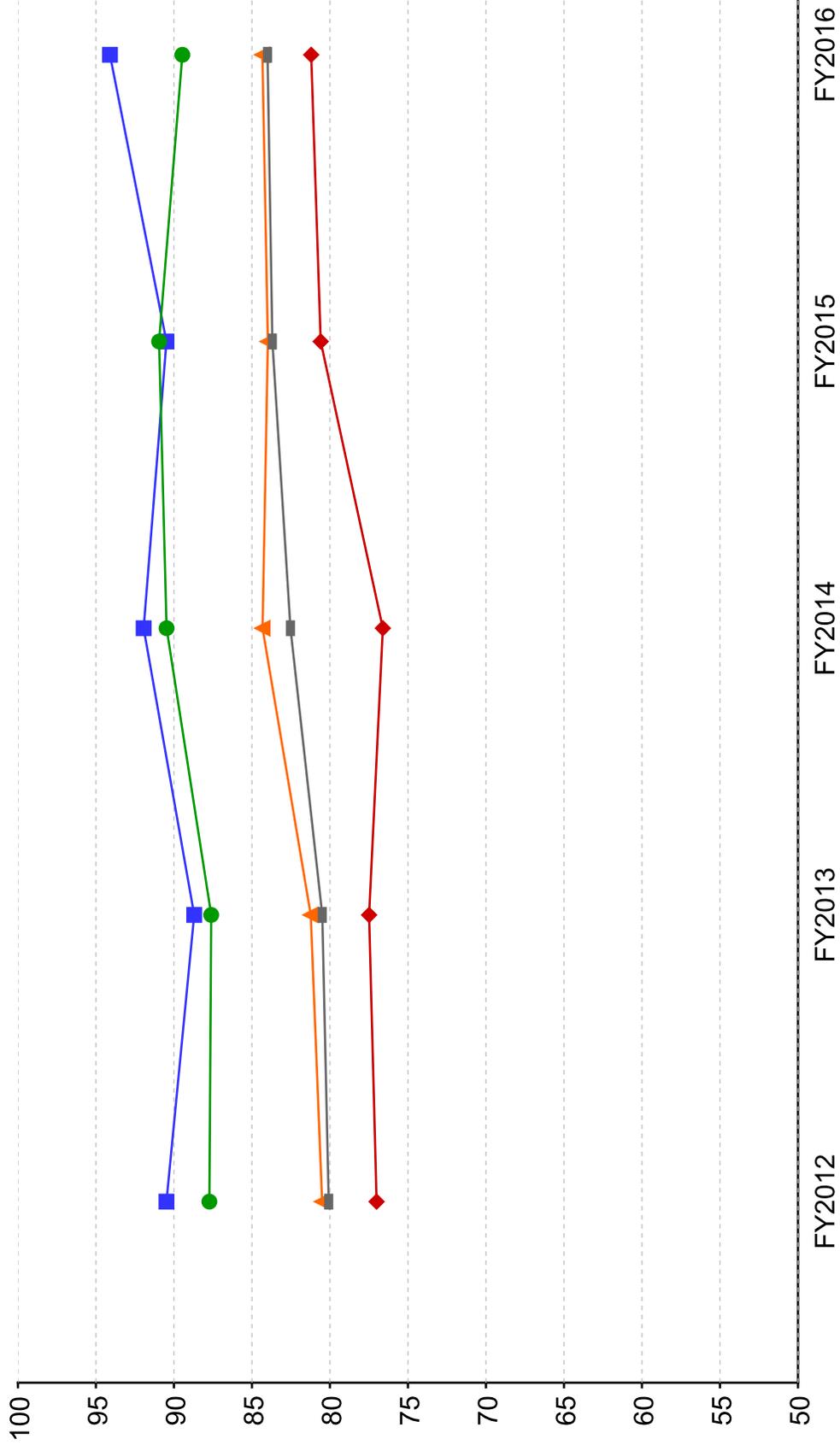
APPENDIX IV

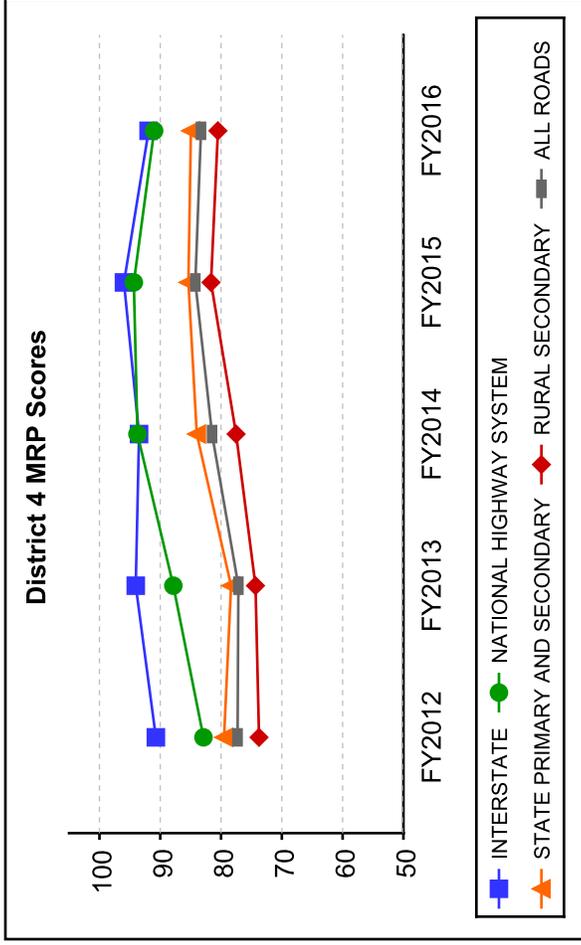
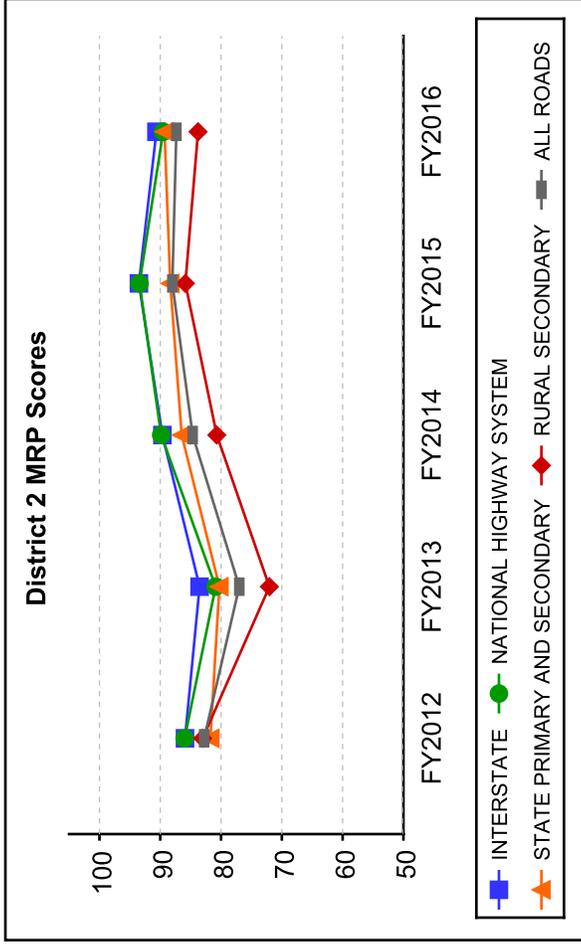
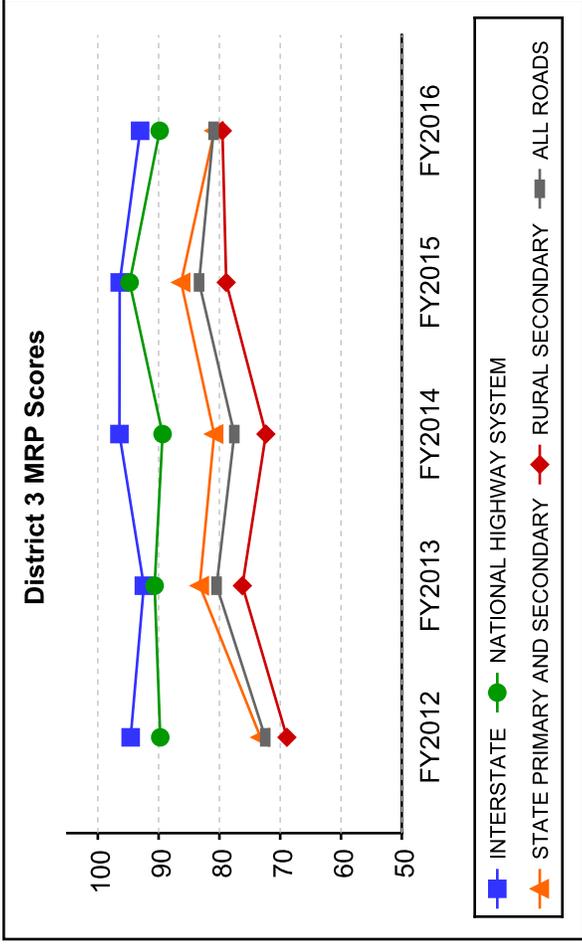
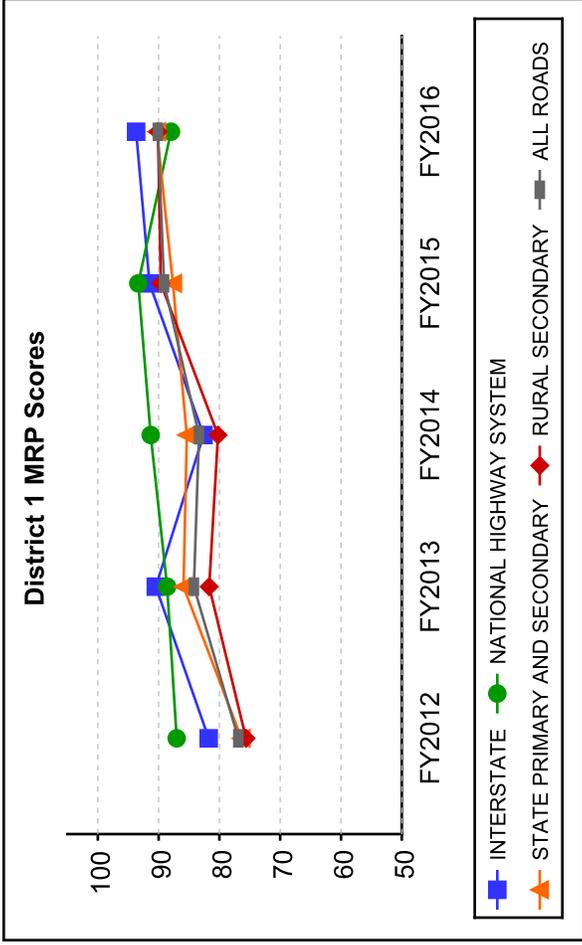
Total Scores by Road Type

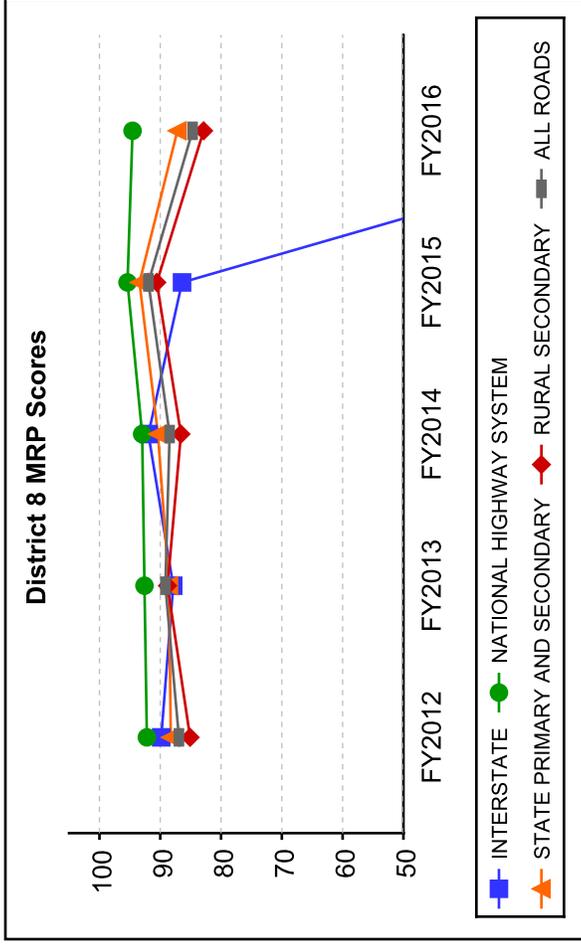
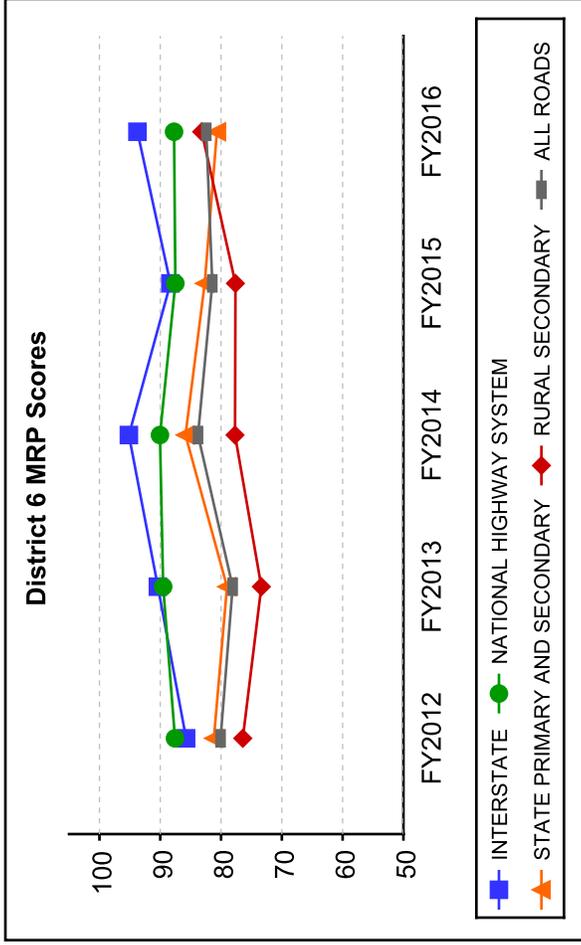
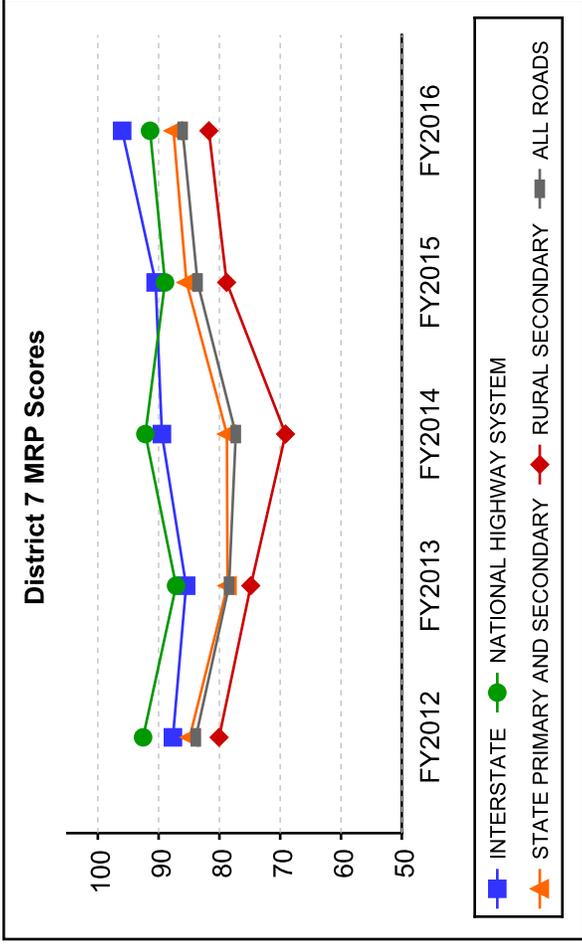
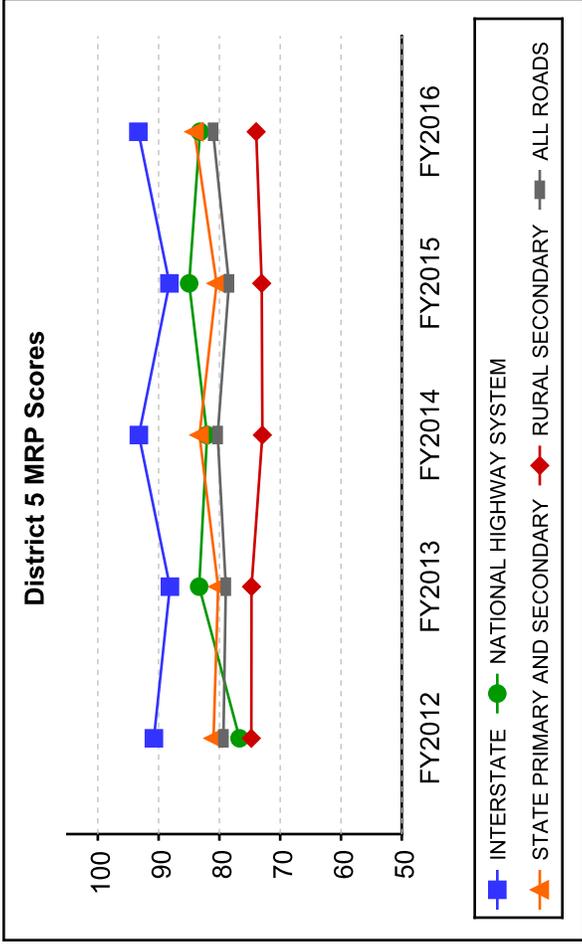
The graphs in Appendix IV illustrate the total MRP scores for each district and statewide. These are the combined scores for all roadway features. Included are the most recent MRP data and historical data for all previous four years.

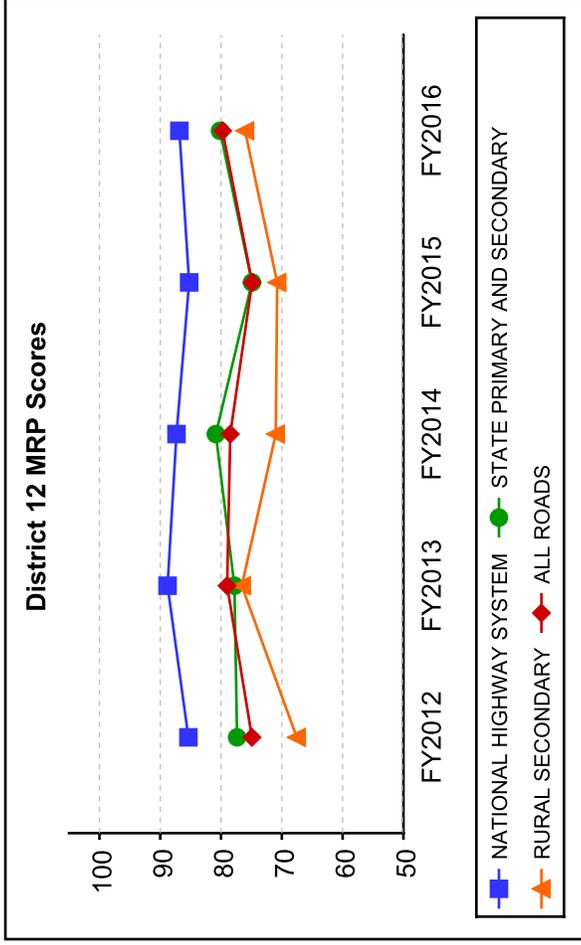
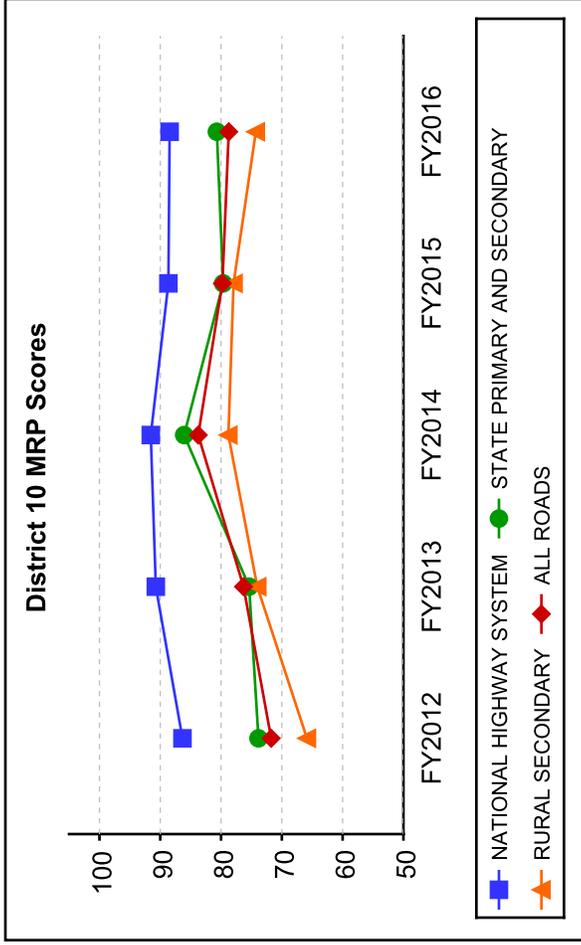
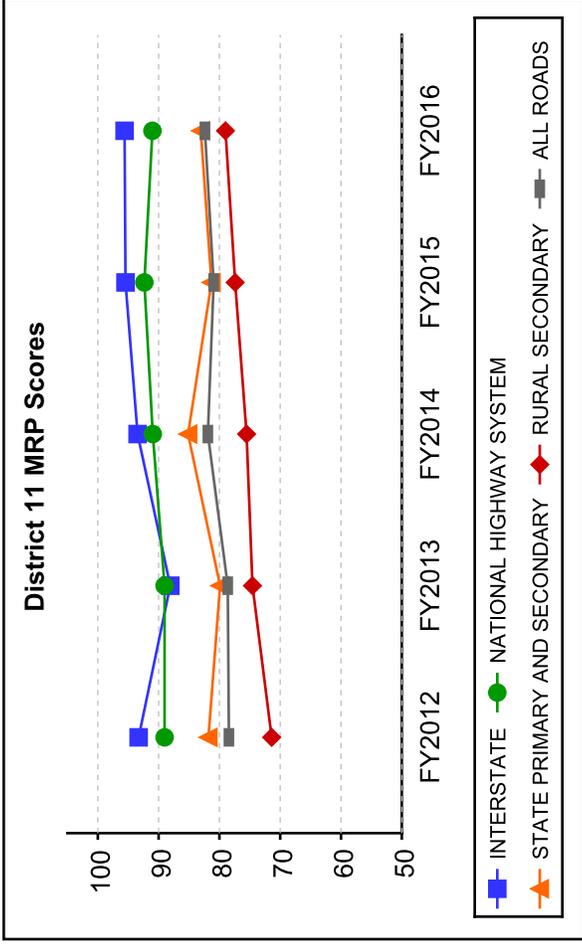
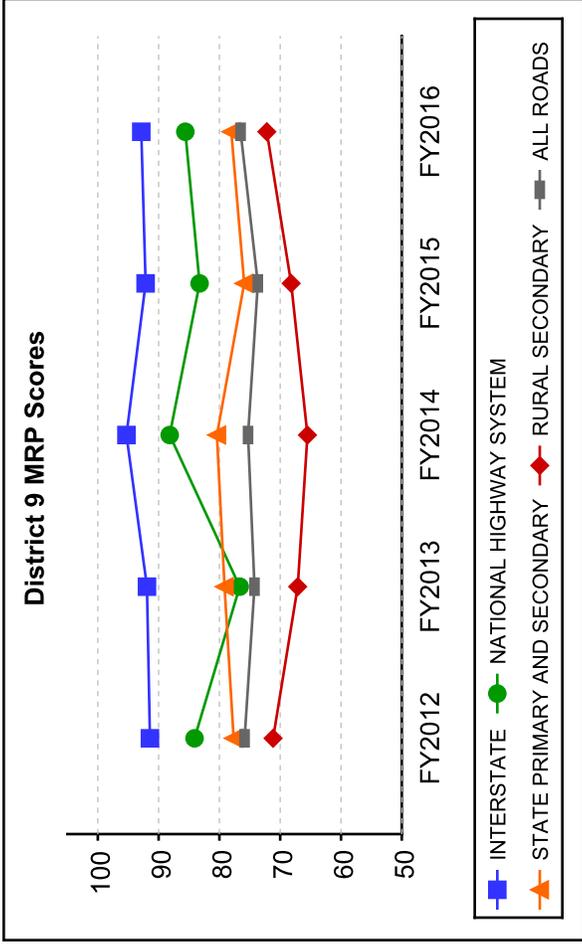
As in previous graphs, the four road types are represented by colored lines, while the overall weighted average is shown as a gray shaded area.

Statewide MRP Scores









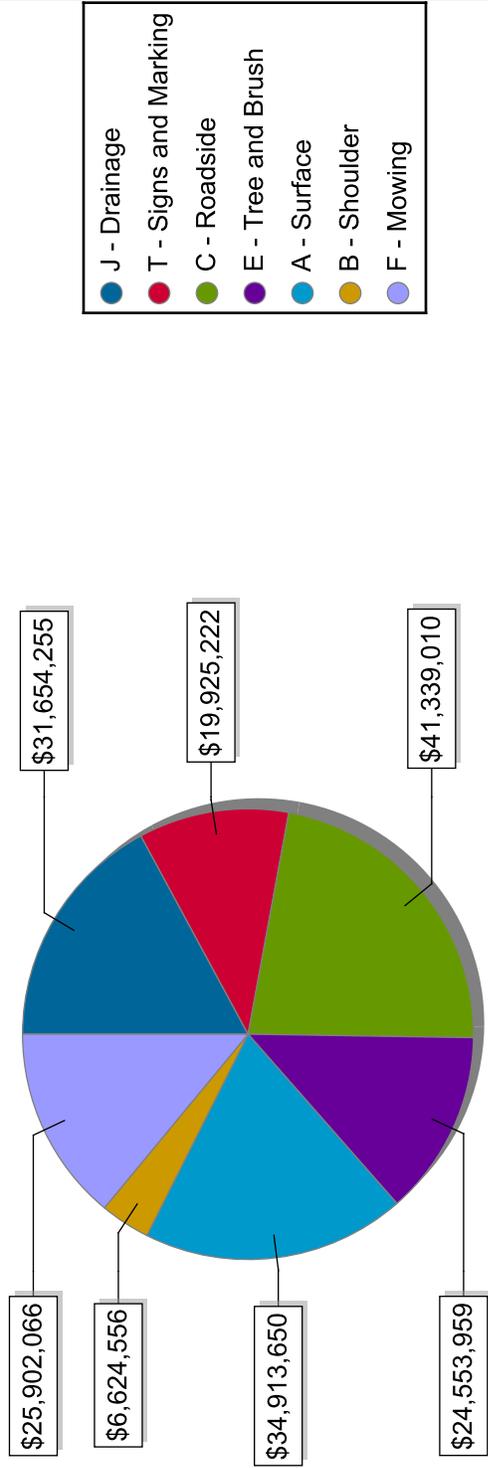
APPENDIX V

Activity Spending

Appendix V tables and graphs are a summary of previous fiscal year district spending impacting current MRP scores. Spending is pulled from a combination of OMS and EMARS reports in order to include state force and contract spending.

Appendix V also contains a complete list of activities that impact features inspected by the MRP.

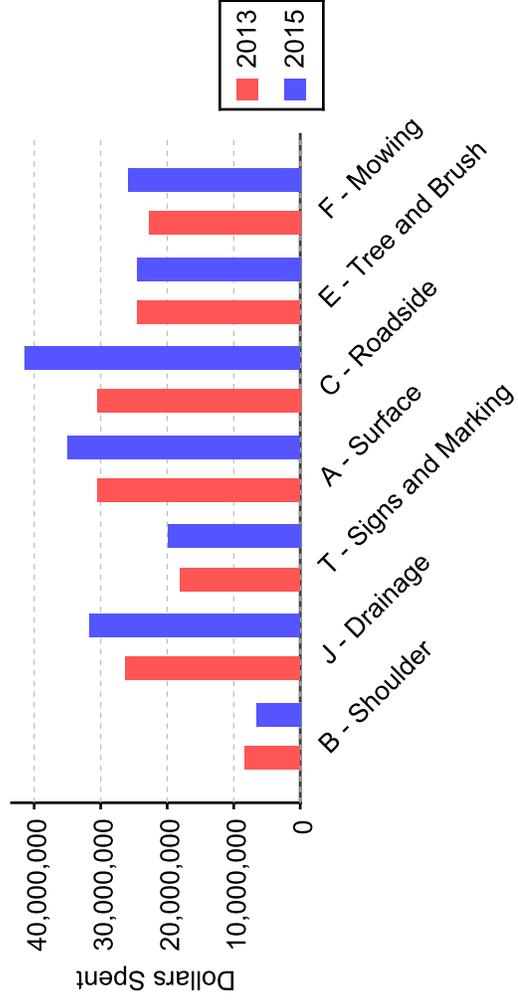
Statewide Maintenance Spending FY2015



TOTAL = \$ 184,912,718

- J - Drainage
- T - Signs and Marking
- C - Roadside
- E - Tree and Brush
- A - Surface
- B - Shoulder
- F - Mowing

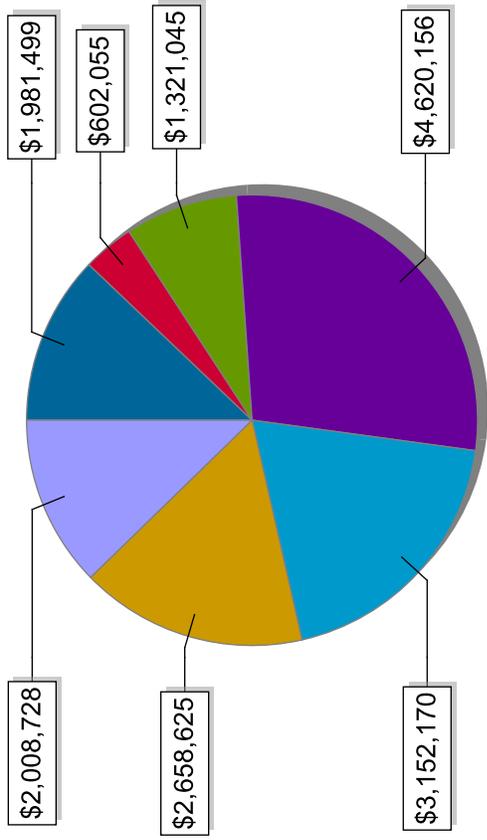
Statewide Maintenance Spending



Statewide Scores Comparison

Classification	FY2014	FY2016
ALL ROADS	82.5	84.0
INTERSTATE	91.9	94.1
NATIONAL HIGHWAY SYSTEM	90.5	89.5
STATE PRIMARY AND SECONDARY	84.3	84.3
RURAL SECONDARY	76.6	81.2

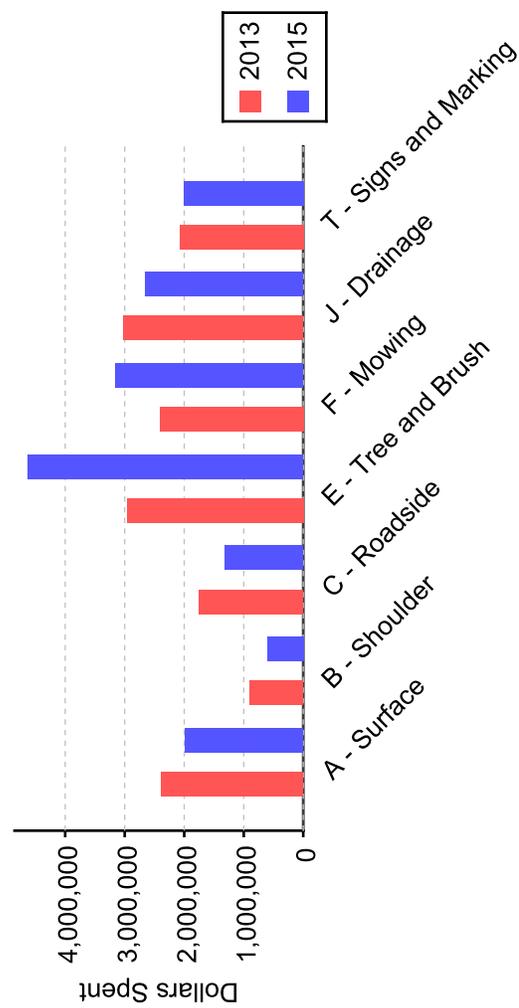
District One Maintenance Spending FY2015



- A - Surface
- B - Shoulder
- C - Roadside
- E - Tree and Brush
- F - Mowing
- J - Drainage
- T - Signs and Marking

TOTAL = \$ 16,344,278

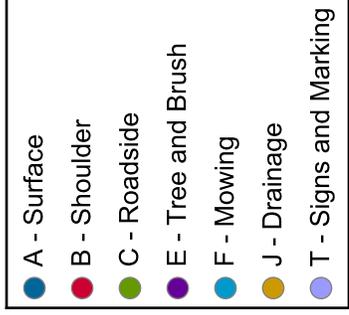
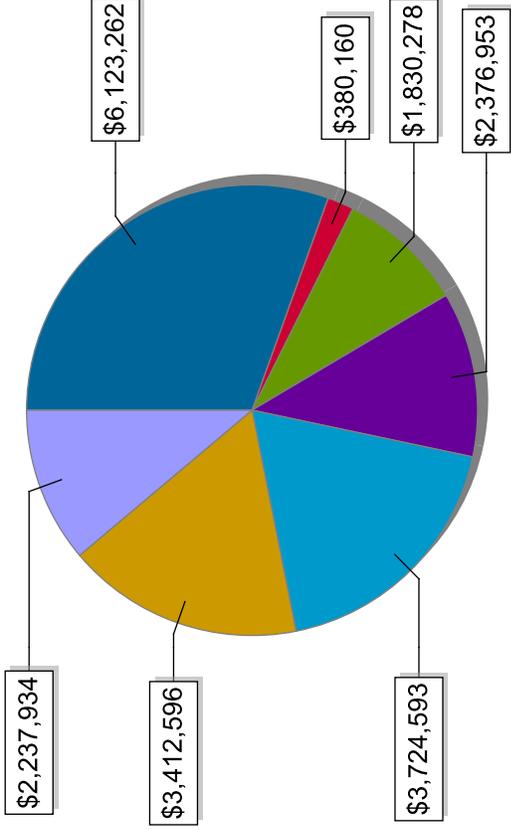
District One Maintenance Spending



District One Scores Comparison

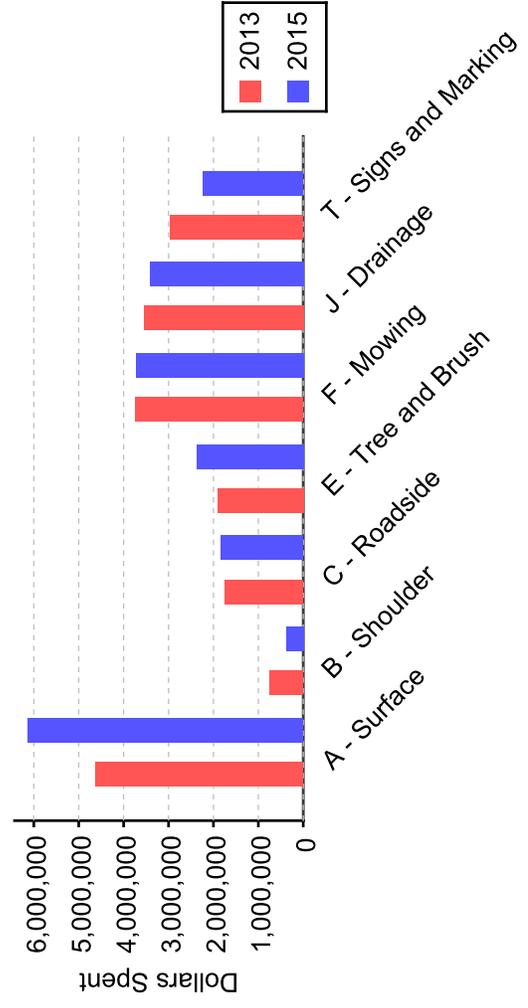
Classification	FY2014	FY2016
ALL ROADS	83.4	90.1
INTERSTATE	82.6	93.7
NATIONAL HIGHWAY SYSTEM	91.3	88.0
STATE PRIMARY AND SECONDARY	85.4	90.3
RURAL SECONDARY	80.2	90.1

District Two Maintenance Spending FY2015



TOTAL = \$ 20,085,776

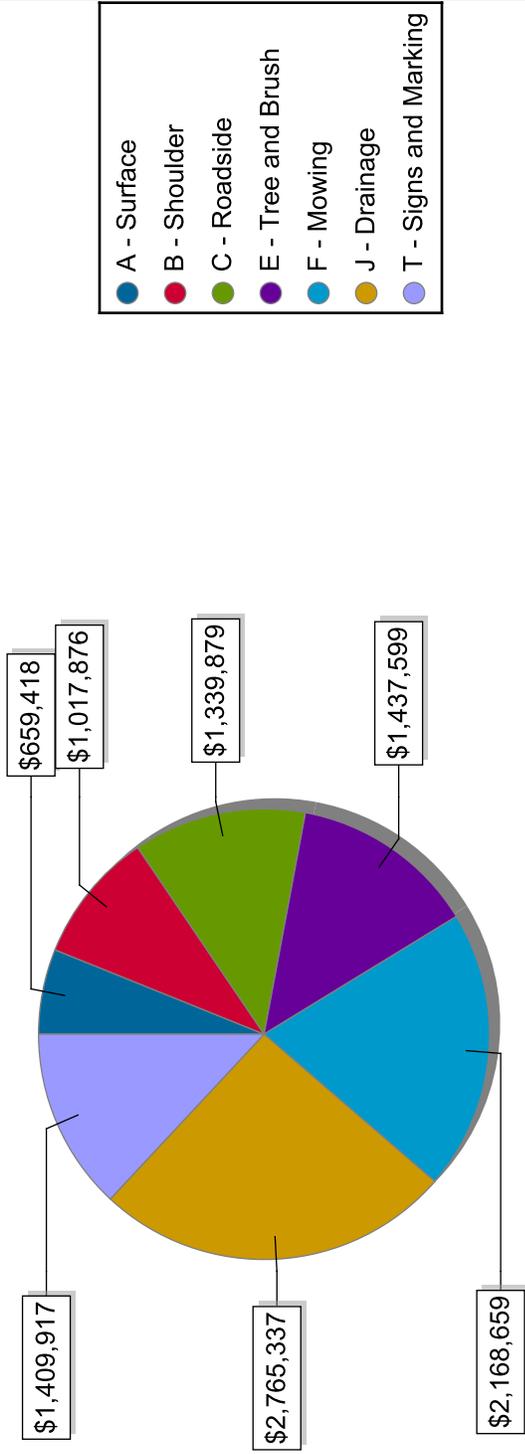
District Two Maintenance Spending



District Two Scores Comparison

Classification	FY2014	FY2016
ALL ROADS	84.7	87.4
INTERSTATE	89.6	90.6
NATIONAL HIGHWAY SYSTEM	89.8	89.5
STATE PRIMARY AND SECONDARY	86.5	89.3
RURAL SECONDARY	80.7	83.8

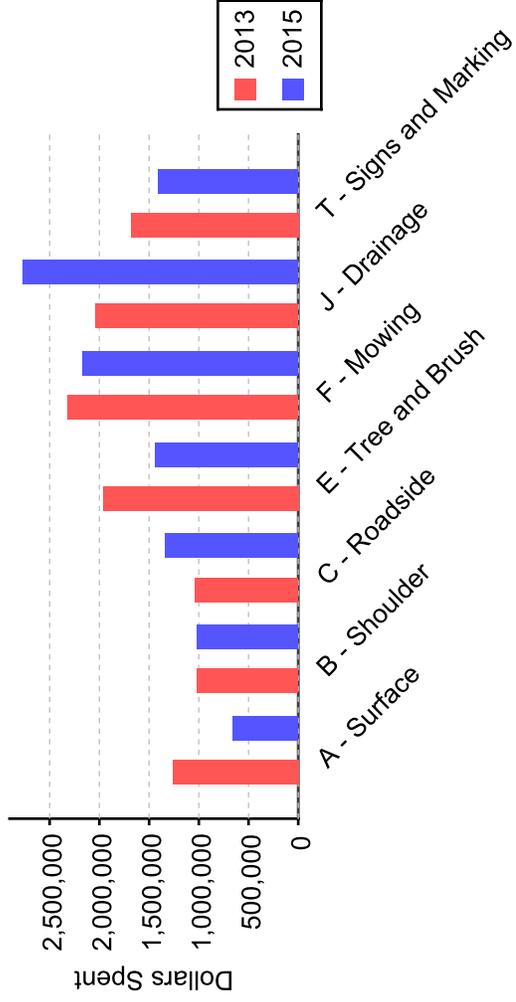
District Three Maintenance Spending FY2015



TOTAL = \$ 10,798,685

- A - Surface
- B - Shoulder
- C - Roadside
- E - Tree and Brush
- F - Mowing
- J - Drainage
- T - Signs and Marking

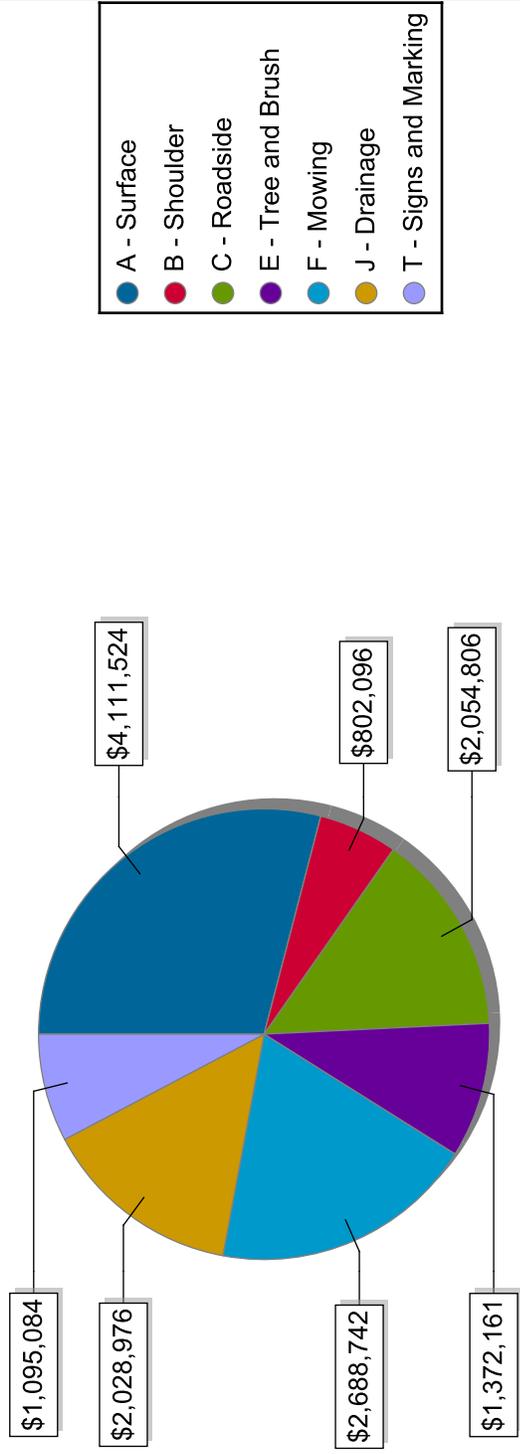
District Three Maintenance Spending



District Three Scores Comparison

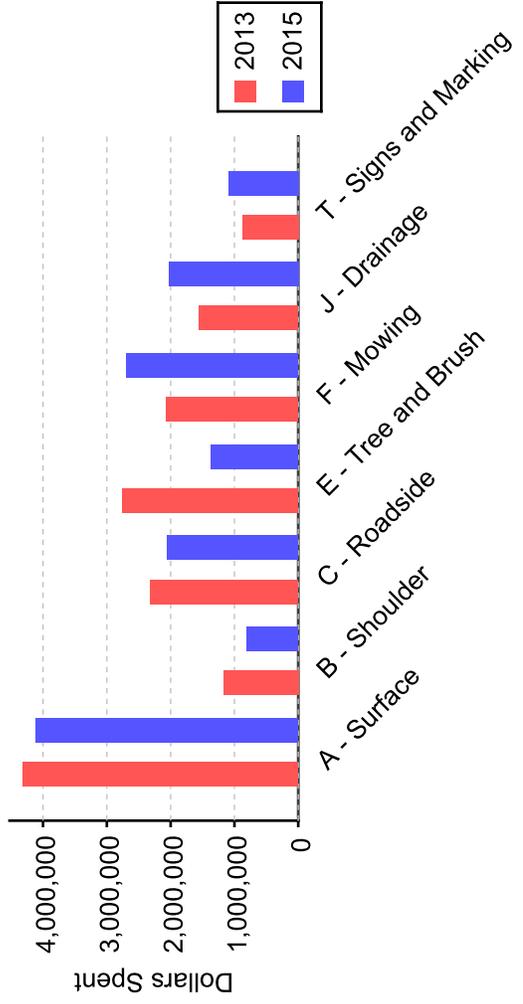
Classification	FY2014	FY2016
ALL ROADS	77.6	81.0
INTERSTATE	96.4	93.0
NATIONAL HIGHWAY SYSTEM	89.4	89.8
STATE PRIMARY AND SECONDARY	80.9	80.8
RURAL SECONDARY	72.4	79.5

District Four Maintenance Spending FY2015



TOTAL = \$ 14,153,389

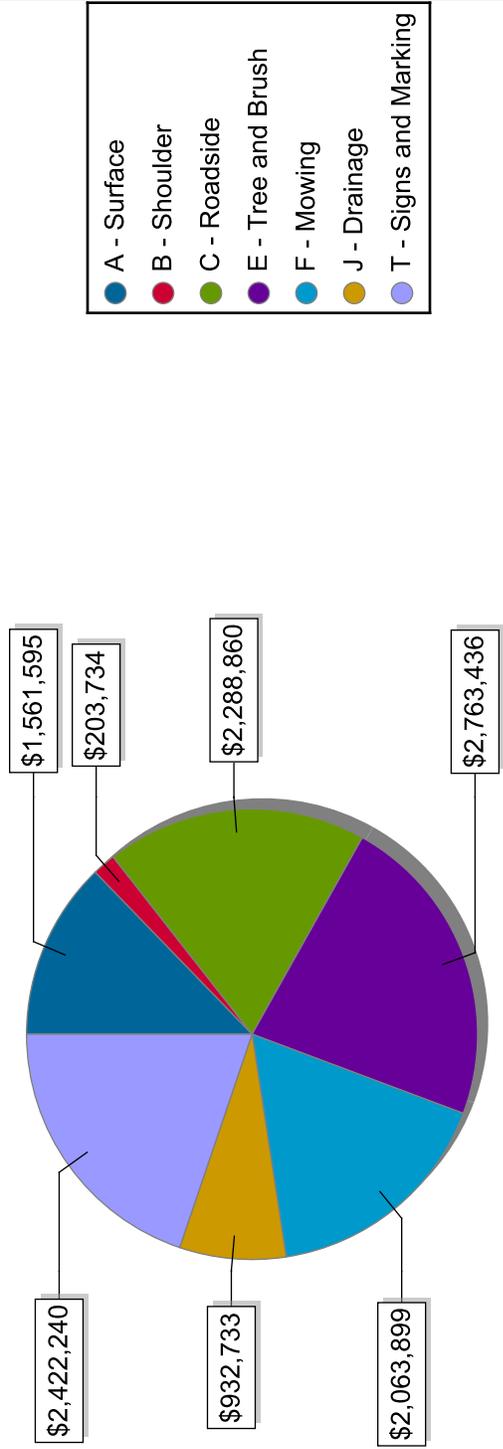
District Four Maintenance Spending



District Four Scores Comparison

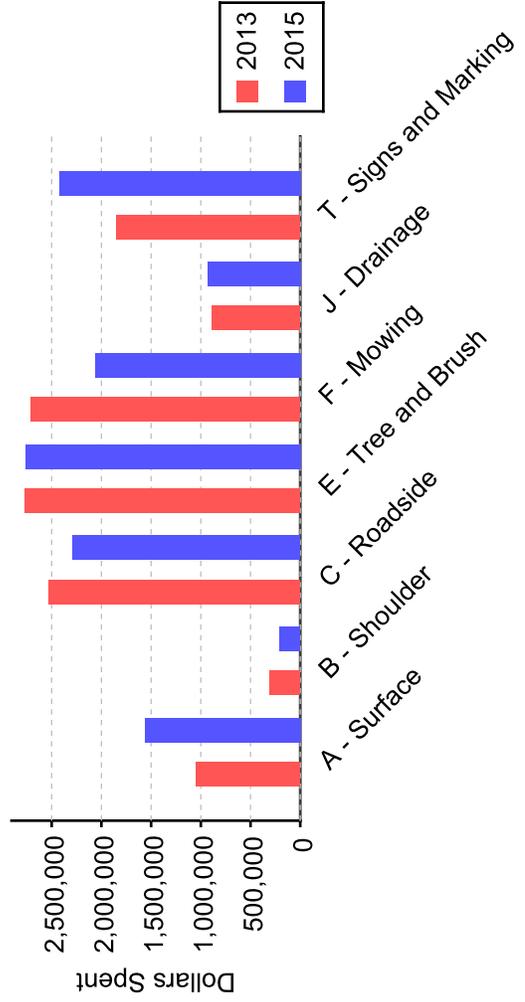
Classification	FY2014	FY2016
ALL ROADS	81.5	83.3
INTERSTATE	93.5	91.9
NATIONAL HIGHWAY SYSTEM	93.8	91.0
STATE PRIMARY AND SECONDARY	84.0	85.0
RURAL SECONDARY	77.5	80.5

District Five Maintenance Spending FY2015



TOTAL = \$ 12,236,497

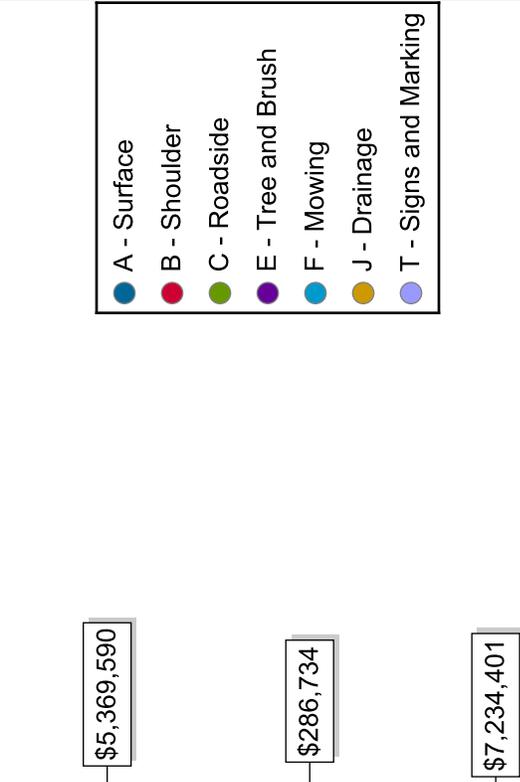
District Five Maintenance Spending



District Five Scores Comparison

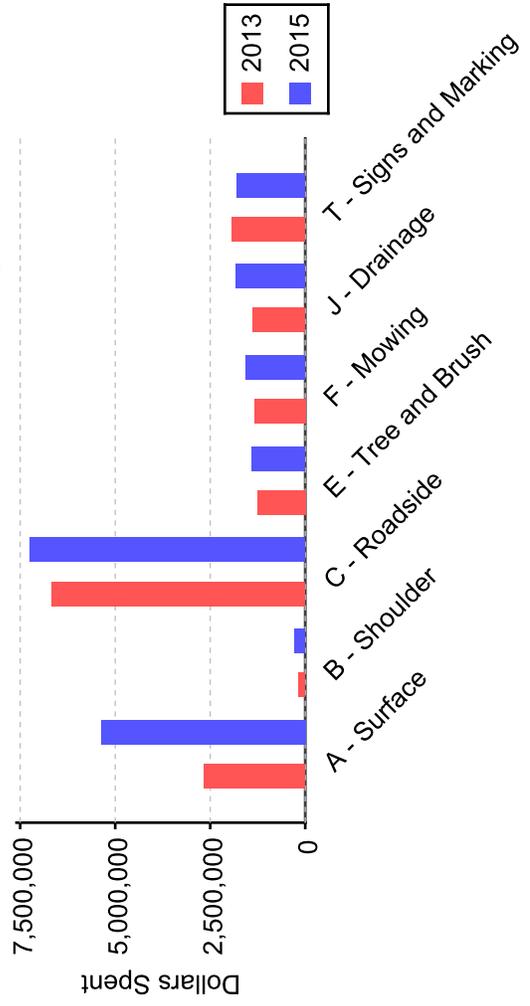
Classification	FY2014	FY2016
ALL ROADS	80.3	81.0
INTERSTATE	93.2	93.3
NATIONAL HIGHWAY SYSTEM	82.0	83.2
STATE PRIMARY AND SECONDARY	83.3	84.1
RURAL SECONDARY	72.9	74.0

District Six Maintenance Spending FY2015



TOTAL = \$ 19,491,318

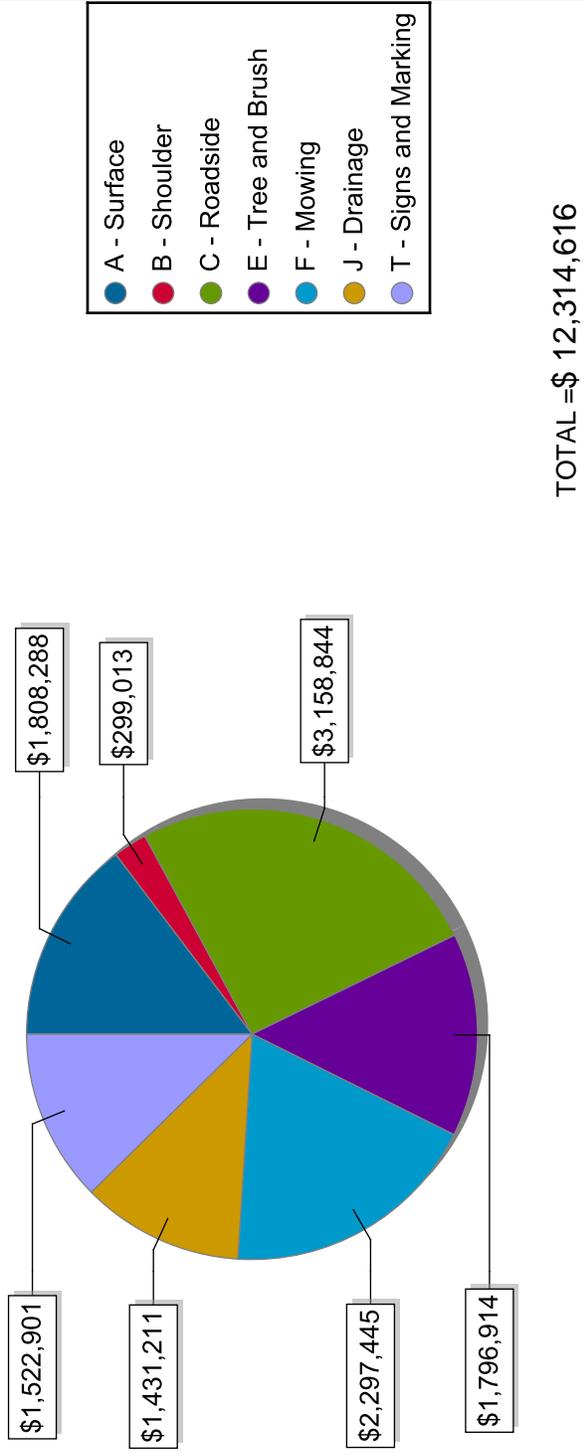
District Six Maintenance Spending



District Six Scores Comparison

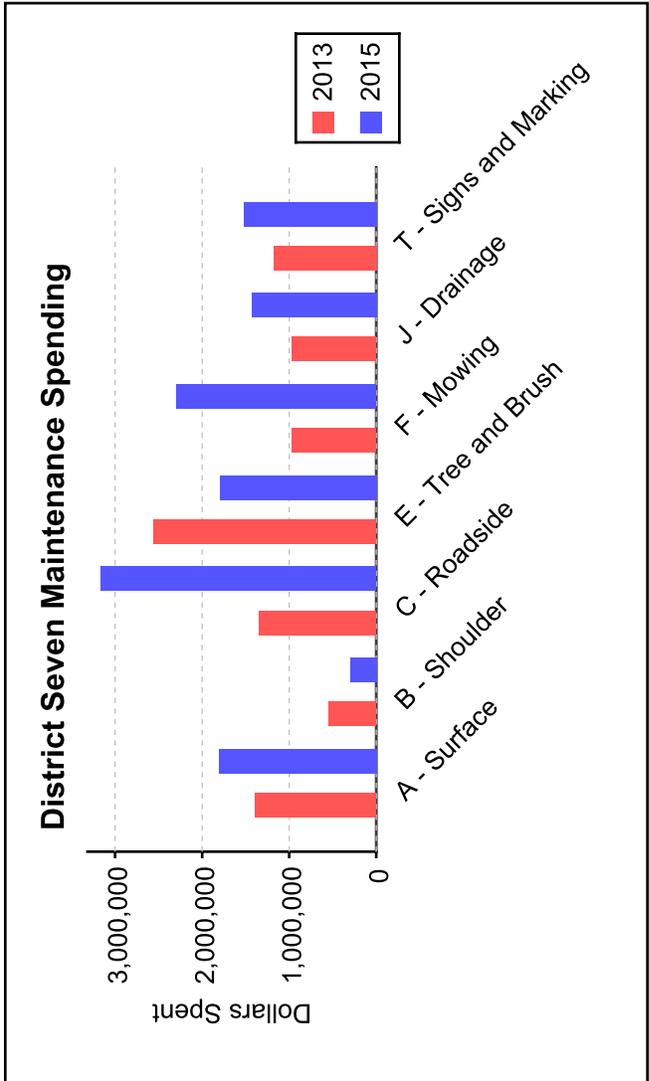
Classification	FY2014	FY2016
ALL ROADS	83.8	82.4
INTERSTATE	95.2	93.8
NATIONAL HIGHWAY SYSTEM	90.0	87.7
STATE PRIMARY AND SECONDARY	85.8	80.7
RURAL SECONDARY	77.7	83.2

District Seven Maintenance Spending FY2015

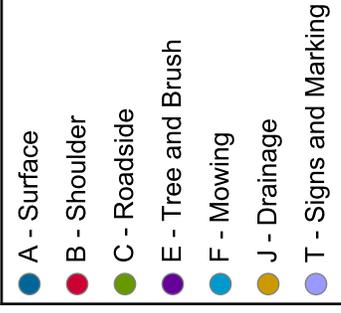
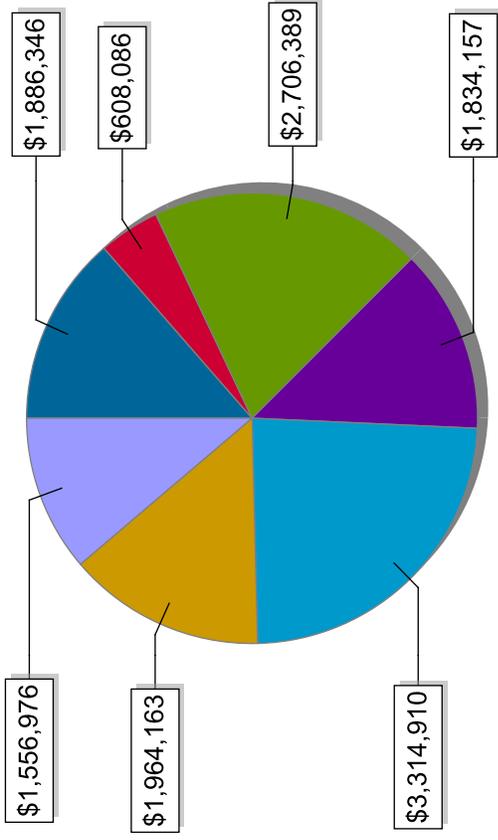


District Seven Scores Comparison

Classification	FY2014	FY2016
ALL ROADS	77.3	86.0
INTERSTATE	89.5	96.0
NATIONAL HIGHWAY SYSTEM	92.2	91.4
STATE PRIMARY AND SECONDARY	78.8	87.6
RURAL SECONDARY	69.1	81.7

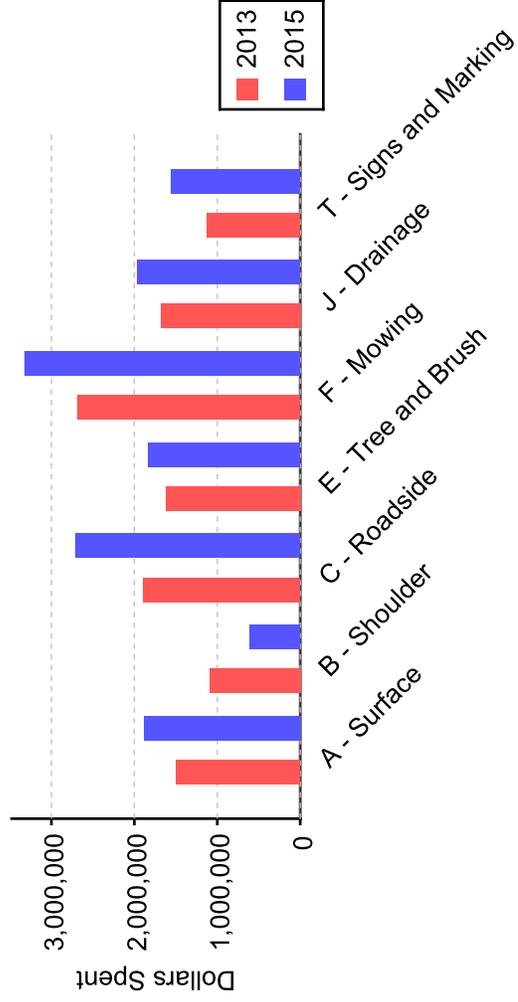


District Eight Maintenance Spending FY2015



TOTAL = \$ 13,871,027

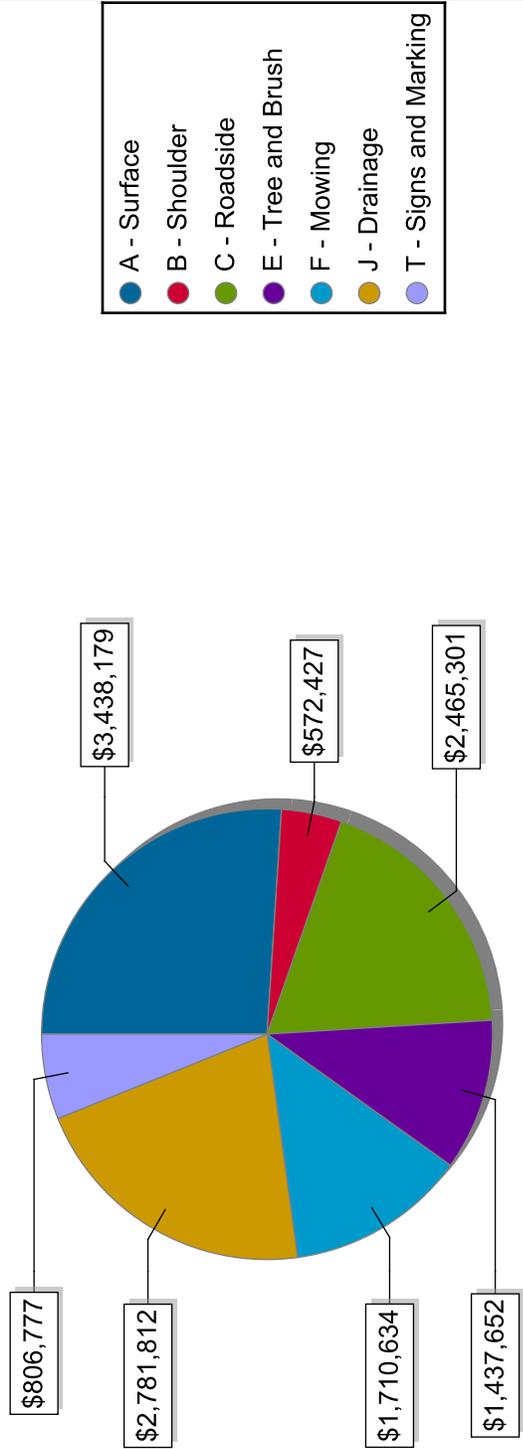
District Eight Maintenance Spending



District Eight Scores Comparison

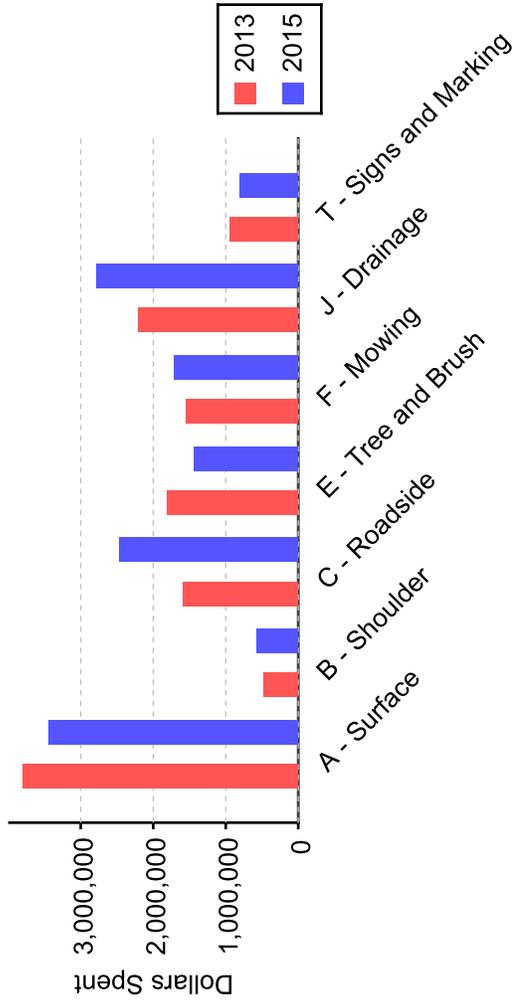
Classification	FY2014	FY2016
ALL ROADS	88.5	84.7
INTERSTATE	92.0	0.0
NATIONAL HIGHWAY SYSTEM	93.0	94.6
STATE PRIMARY AND SECONDARY	90.4	87.2
RURAL SECONDARY	86.6	82.9

District Nine Maintenance Spending FY2015



TOTAL = \$ 13,212,782

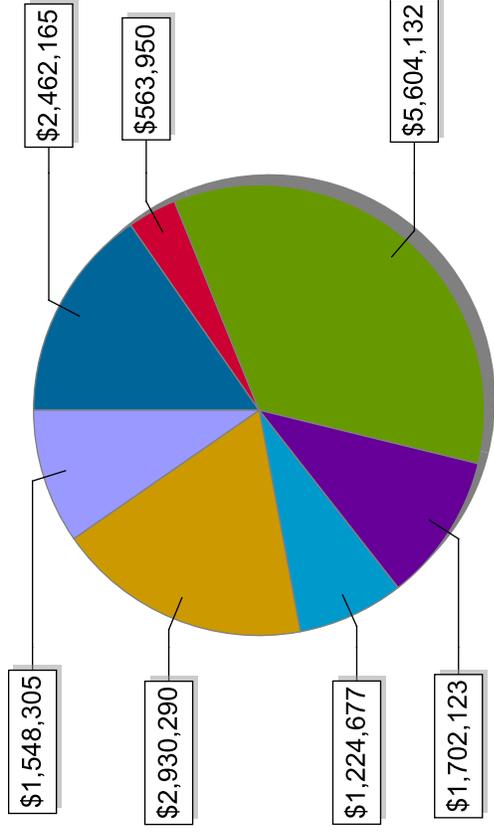
District Nine Maintenance Spending



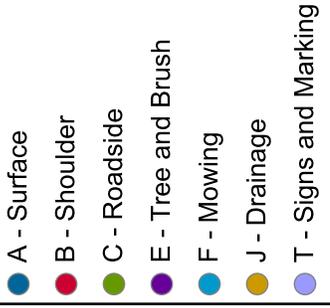
District Nine Scores Comparison

Classification	FY2014	FY2016
ALL ROADS	75.3	76.5
INTERSTATE	95.3	92.8
NATIONAL HIGHWAY SYSTEM	88.2	85.6
STATE PRIMARY AND SECONDARY	80.4	78.0
RURAL SECONDARY	65.5	72.2

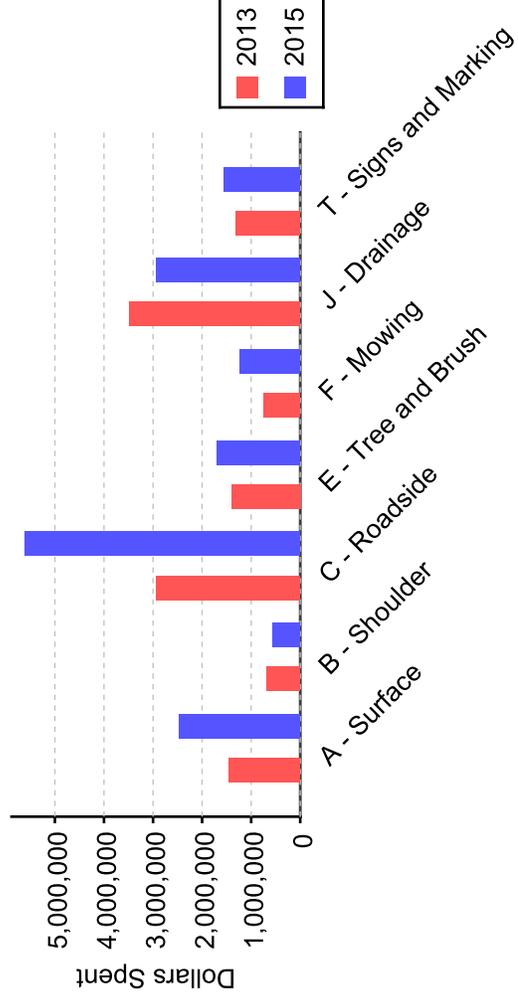
District Ten Maintenance Spending FY2015



TOTAL = \$ 16,035,642



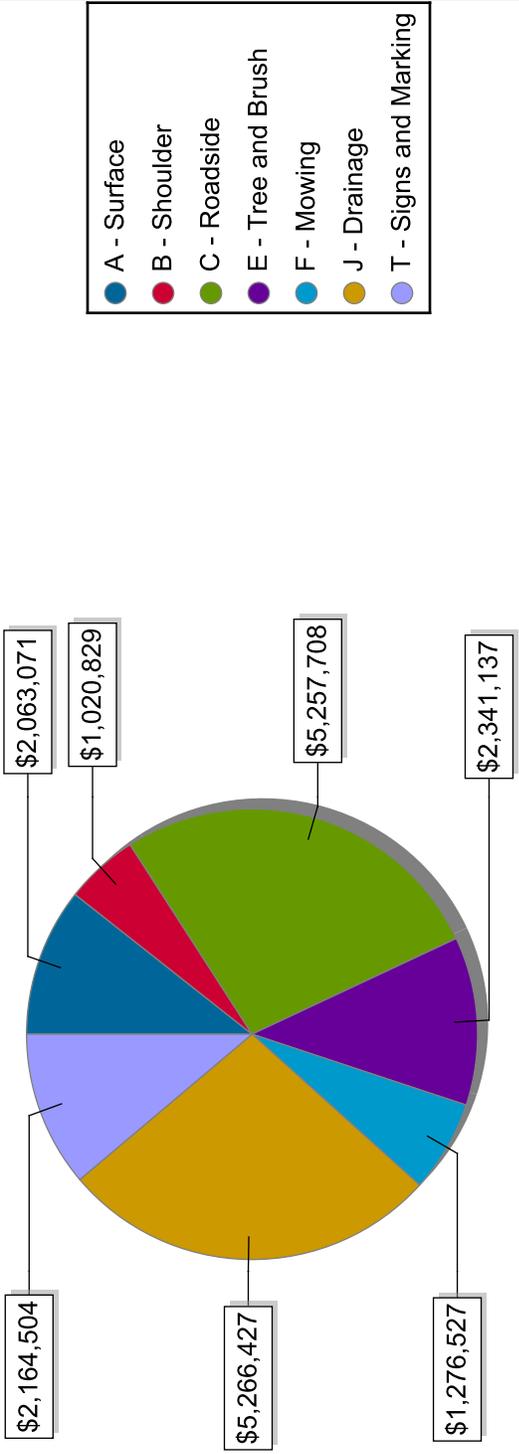
District Ten Maintenance Spending



District Ten Scores Comparison

Classification	FY2014	FY2016
ALL ROADS	83.8	78.7
NATIONAL HIGHWAY SYSTEM	91.6	88.5
STATE PRIMARY AND SECONDARY	86.1	80.7
RURAL SECONDARY	78.8	74.3

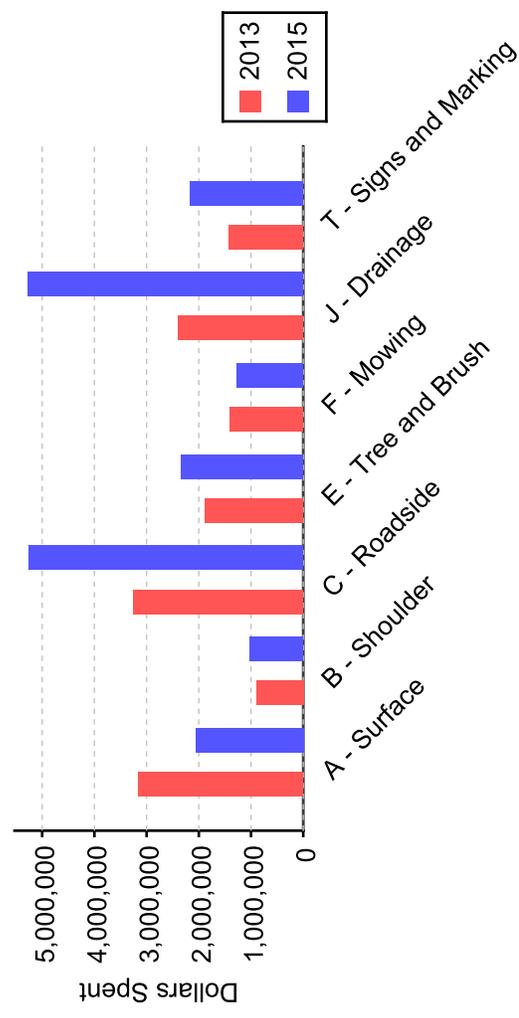
District Eleven Maintenance Spending FY2015



TOTAL = \$ 19,390,203

- A - Surface
- B - Shoulder
- C - Roadside
- E - Tree and Brush
- F - Mowing
- J - Drainage
- T - Signs and Marking

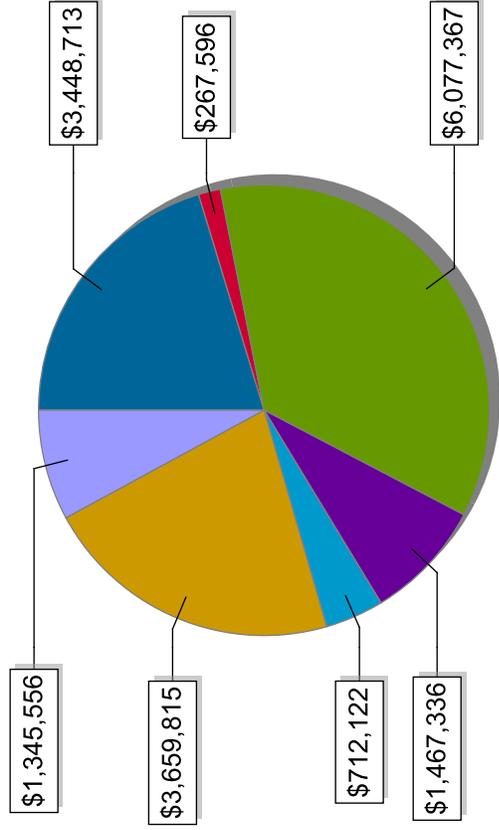
District Eleven Maintenance Spending



District Eleven Scores Comparison

Classification	FY2014	FY2016
ALL ROADS	81.9	82.4
INTERSTATE	93.5	95.6
NATIONAL HIGHWAY SYSTEM	91.0	91.0
STATE PRIMARY AND SECONDARY	85.2	83.1
RURAL SECONDARY	75.5	79.0

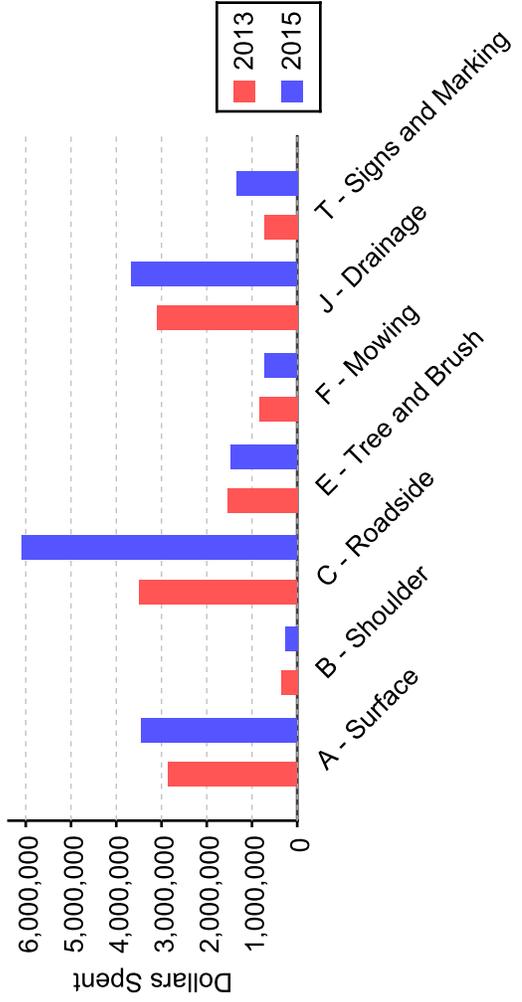
District Twelve Maintenance Spending FY2015



- A - Surface
- B - Shoulder
- C - Roadside
- E - Tree and Brush
- F - Mowing
- J - Drainage
- T - Signs and Marking

TOTAL = \$ 16,978,505

District Twelve Maintenance Spending



District Twelve Scores Comparison

Classification	FY2014	FY2016
ALL ROADS	78.5	79.8
NATIONAL HIGHWAY SYSTEM	87.3	86.9
STATE PRIMARY AND SECONDARY	80.9	80.2
RURAL SECONDARY	71.0	76.1

ACTIVITY	Roadway										Routing	
	General	Rideability	Appearance	Vertical Clearance	Visual Obstructions	Fencing	Guardrail Out of Specifications	Guardrail Damage	Attenuators/Rail Ends	Pavement		Potholes
A010 SUR-POT HOLE PATCH (tons)		X	X								X	
A020 MACHINE PATCH (tons)		X	X								X	
A030 SURF-ABNORM REP (tons)		X	X								X	
A040 SURF-REPAIR PCC (sq. ft.)		X	X								X	
A050 SURFACE-SPOT SEAL COAT (tons)		X	X									
A140 TOTAL CONTRA PATCH (tons)		X	X								X	
A150 VENDOR AIDED PATCH (tons)		X	X								X	
A710 MILLING-STATE MACH (sq. yds.)		X	X								X	
A720 MILLING-VENDOR (sq. yds.)		X	X								X	
B010 SHR-POT HOLE HOT (tons)			X									
B040 SHOULDER-SEAL COAT (tons)			X									
B020 SHR-MACH PATCH HOT (tons)			X									
B050 SHR - ABNORM REP (tons)			X									
B110 WEDG PAVE SHR HOT (tons)												
B120 BIT EDGE SHDL (tons)												
B130 GRADE SHRS-GRASS (Ln. Mile)												
B140 SHR TBM MAINT (tons)			X									
B150 CONTRA SHLD MAINT (tons)			X									
B210 GRADE SHOULDERS (miles)												
B220 GRADE SHR ADD MAT (tons)												
B230 GRADE SHLD UNDR GR (linear foot)												
B540 EDGE UNPAVED SHDLS (tons)												
B990 MISC SHR MAINT (hours)												
C010 ROCK FALLS AND DEBRIS (hours)			X									
C020 SLIDES/SINKHOLES & DEBRIS (hours)			X									
C100 LITTER CLNUP EX (hours)			X									
C110 LITTER CLEANUP (hours)			X									
C130 DEAD ANIMAL (hours)			X									
C140 SWEEP (hours)			X									
C150 CONT-MECH SWEEP (miles)			X									
C190 CRASH CUSHIONS (each)												X
C200 REPAIR FENCES (linear foot)					X							
C300 REP ST BM GRL (linear foot)						X						

ACTIVITY	Roadway										Rutting
	General	Rideability	Appearance	Vertical Clearance	Visual Obstructions	Fencing	Guardrail Out of Specifications	Guardrail Damage	Attenuators/Rail Ends	Pavement	
C330 REP GR END TR (each)									X		
C390 CNTRCT GRAIL (hours)							X	X	X		
C400 CNTRCT GRAIL EN (hours)							X	X	X		
E010 TREE&BRUSH RMVL (hours)			X	X	X						
E020 GRADER			X	X	X						
E030 CONTR TREE-BRSH (hours)			X	X	X						
E110 TREE&SHRUB MNT (hours)			X	X	X						
E290 HERB GRAIL (miles)			X	X	X						
E300 SPOT SPRAY HERB (acres)			X	X	X						
E310 MECH SPRAY OF H (acres)			X	X	X						
F050 SLOPE MOWING (hours)			X	X	X						
F080 MOWER SUPPORT (hours)											
F090 HAND TRIM/LAWN MOW (hours)			X	X	X						
F310 MOW-STATE FORCE (acres)			X	X	X						
F320 MOW-CONTRACT (hours)			X	X	X						
J010 HAND CLN CULVRT (each)											
J020 MACH CLN CULVRT (each)											
J030 RPR CULV/PIPE (each)											
J070 PVT ENT MAINT (each)											
J110 SLOPE PROTECT (tons)											
J150 CONTRACT DRNGE (hours)											
J210 DITCH W/ GRADE (miles)											
J230 SPT DCH BOOM EQ (miles)											
J310 PAV/ ROCK DTCH (linear foot)											
J320 CLN DRAIN CHNL (hours)											
T010 CONTRACT 4" YELLOW STRIP (linear foot)			X								
T020 S.F. 4" YELLOW STRIPING (linear foot)			X								
T030 S.F. 4" WHITE STRIPING (linear foot)			X								
T040 HAND PVMT MARK (hours)			X								
T050 HAND PVMT PAINT (hours)			X								
T060 RAISED PVMT MRK (each)			X								
T110 PNT LNE&EDG LNE (miles)			X								
T200 PLCMNT SHT SIG (each)			X								
T210 RPLC SIGN & DEL (each)			X								
T240 SIGN MNT (each)			X								
T250 MNT PANEL SIGNS (each)			X								

ACTIVITY	Shoulders			Shoulder Drop-Off to Shoulder			Shoulder Drop-Off to Ground			High Shoulder			Shoulder Potholes			Drainage			Traffic			Warning Signs Assemblies		
	Pavement Drop-Off to Shoulder	Shoulder Drop-Off to Ground	High Shoulder	Shoulder Potholes	Drainage Structures	Ditches	Curb and Gutter	Traffic	White Stripe Reflectivity	Yellow Stripe Reflectivity	Guide Signs	Guide Signs Assemblies	Warning Signs	Warning Signs Assemblies										
C330 REP GR END TR (each)																								
C390 CNTRCT GRAIL (hours)																								
C400 CNTRCT GRAIL EN (hours)																								
E010 TREE&BRUSH RMVL (hours)																								
E020 GRADER																								
E030 CONTR TREE-BRSH (hours)																								
E110 TREE&SHRUB MNT (hours)																								
E290 HERB GRAIL (miles)																								
E300 SPOT SPRAY HERB (acres)																								
E310 MECH SPRAY OF H (acres)																								
F050 SLOPE MOWING (hours)																								
F080 MOWER SUPPORT (hours)																								
F090 HAND TRIM/LAWN MOW (hours)																								
F310 MOW-STATE FORCE (acres)																								
F320 MOW-CONTRACT (hours)																								
J010 HAND CLN CULVRT (each)					X	X																		
J020 MACH CLN CULVRT (each)					X	X																		
J030 RPR CULV/PIPE (each)					X	X																		
J070 PVT ENT MAINT (each)					X	X																		
J110 SLOPE PROTECT (tons)					X	X																		
J150 CONTRACT DRNGE (hours)					X	X	X																	
J210 DITCH W/ GRADE (miles)					X	X																		
J230 SPT DCH BOOM EQ (miles)					X	X																		
J310 PAV/ ROCK DTCH (linear foot)					X	X																		
J320 CLN DRAIN CHNL (hours)					X	X																		
T010 CONTRACT 4" YELLOW STRIP (linear foot)									X															
T020 S.F. 4" YELLOW STRIPING (linear foot)									X															
T030 S.F. 4" WHITE STRIPING (linear foot)									X															
T040 HAND PVMT MARK (hours)									X															
T050 HAND PVMT PAINT (hours)									X															
T060 RAISED PVMT MRK (each)									X															
T110 PNT LINE&EDG LNE (miles)									X															
T200 PLCMNT SHT SIG (each)									X															
T210 RPLC SIGN & DEL (each)									X															
T240 SIGN MNT (each)									X															
T250 MNT PANEL SIGNS (each)									X															

APPENDIX VI

Inspection Features

Appendix VI includes an example of the current inspection form used in data collection.

The table in Appendix VI explains the data collection of each inspection feature of the Maintenance Rating Program and how that data is converted into scoring for the report.

Explanation and Score Equivalence of Inspection Features

Inspection Features	Explanation	Score	MRP Score
International Roughness Index	A measure that indicates smoothness and ride quality for the highway user. Note: Weighting used in sampling scheme may create variances between the MRP rideability indices and those reported for the entire population.	51 or less	90 +
		52 - 90	80 – 89.9
		91-129	70 – 79.9
		130 – 167	60 – 69.9
		168+	59.9 and below
Appearance	The general visual character (height of grass, litter, unsightly patching, etc.) of the roadway and roadside as it would be seen by the public.	100% acceptable	100
		80%	80
		60%	60
Vertical Clearance	Roadways and shoulders are free of any canopy (trees or other vegetation) or other obstructions for a minimum height of 15 feet.	0% obstructed	100
		20%	80
		40%	60
Visual Obstructions	Vegetation, structures, signage etc. cause horizontal or vertical visual obstructions of intersections, curves, signs, oncoming lanes, etc.	0% obstructed	100
		20%	80
		40%	60
Fencing Providing Effective Barriers	Fencing provides an effective barrier on limited access highways (Interstate, Parkways, or other highways) to deny access to people or animals. Segments with no fencing are not included in the sample.	100% effective	100
		80%	80
		60%	60
Guardrail Within Height Specifications	The height is at least 25 inches and not more than 29 inches.	100% in spec	100
		80%	80
		60%	60
Guardrail Fully Functional	Guardrails have not been damaged due to vehicular hits or other factors.	100% in spec	100
		80%	80
		60%	60

Inspection Features	Explanation	Score	MRP Score
Attenuators/End Treatments Undamaged	Attenuators / End Treatments have not been damaged due to vehicular hits or other factors.	100% undamaged	100
		80%	80
		60%	60
Pavement Potholes	A bowl shaped hole of various sizes in the pavement surface. The surface may have broken into small pieces due to cracking or localized disintegration and the material removed by traffic. A pothole has a minimum size of 6"x6"x1".	0 failed sections	100
		10%	75
		20%	50
		40%	0
Rutting	A surface depression of pavement in the wheel paths. Ruts may be more noticeable after a rainfall when wheel paths are full with water.	0% have ruts larger than ¼"	100
		20%	80
		40%	60
Pavement Drop-off to Shoulder	Occurs whenever there is a decrease in elevation between the traffic lane and the shoulder. It may be due to consolidation, displacement or settlement of underlying material.	0% have drop-off larger than 1.5"	100
		20%	80
		40%	60
Shoulder Drop-off to Ground	An elevation difference between the improved shoulder and adjacent ground at the outside edge of the shoulder. It could be due to consolidation of material, erosion, run off or other factors.	0% have drop-off larger than 3"	100
		20%	80
		40%	60
High Shoulder	The opposite of pavement drop-off to shoulder. Frost heave, swelling soils or other factors can cause it. High shoulder creates ponding of water on pavement.	0% unacceptable	100
		20%	80
		40%	60
Shoulder Potholes	A bowl shaped hole or depression in the shoulder surface. The surface may have broken into small pieces due to the cracking or localized disintegration and the material removed by traffic. A shoulder pothole has a minimum size of 6"x6"x1".	0% failed sections	100
		10%	75
		20%	50
		40%	0

Inspection Features	Explanation	Score	MRP Score
Drainage Structures	Drainage structures like pipes and culverts that are free of any degree of obstruction and are in good working order. Drainage structures obstructed more than 25% fail.	100% acceptable	100
		80%	80
		60%	60
Ditches	Ditches on the side of the road with water flow not obstructed by dirt, rock, debris, or other items or by structural damage.	0% blockage	100
		20%	80
		40%	60
Curbs and Gutters	Curbs and gutters with water flow not obstructed by blockage or damage.	0% blockage	100
		20%	80
		40%	60
White Striping Reflectivity	Measures night reflectivity of striping that provides positive guidance to motorists. Measurements equal to or exceeding 125 from retro-reflectometer pass.	100% acceptable	100
		80%	80
		60%	60
Yellow Striping Reflectivity	Measures night reflectivity of striping that provides positive guidance to motorists. Measurements equal to or exceeding 80 from retro-reflectometer pass.	100% acceptable	100
		80%	80
		60%	60
Guide Sign Faces	Includes route markers (cardinal directions, route numbers, arrows), distance/destination signs, and directions signs. (Green, brown or blue backgrounds). The standard is no visible defects that detract from effectiveness under nighttime conditions.	100% in spec	100
		90%	80
		80%	60
Guide Sign Assemblies	Guide signs mounted according to specifications including: not leaning more than 22.5 degrees in either direction, no bolts or rivets missing, not turned more than 45 degrees from the line of sight, etc.	100% in spec	100
		90%	80
		80%	60

Inspection Features	Explanation	Score	MRP Score
Warning and Regulatory Sign Faces Meeting Specifications	No visible defects that detract from sign face effectiveness under nighttime conditions. Includes red and white backgrounds (STOP, WRONG WAY, DO NOT ENTER, speed limit, etc.) and yellow backgrounds (STOP AHEAD, curve warning signs, chevrons, etc).	100% in spec	100
		90%	80
		80%	60
Warning and Regulatory Sign Assemblies	Warning and regulatory signs mounted according to specifications, including: not leaning more than 22.5 degrees in any direction, no bolts or rivets missing, not turned more than 45 degrees from the line of sight, etc.	100% in spec	100
		90%	80
		80%	60

Note: Scores for features were calculated only in segments where features were present at least nineteen times to give statistically valid results. If the feature occurred less than nineteen times, "N/A" was entered. However, it was still used for calculating weighted totals such as District Totals (including all road types), Road Type Totals (including all districts), and State Totals (including all road types and all districts).

