

# Missouri's Safety Circuit Rider Program



**MISSOURI LTAP**

MISSOURI LOCAL TECHNICAL ASSISTANCE PROGRAM

*Located at Missouri University of Science and Technology*



# NATIONWIDE

- ❖ Safety on Locally Maintained roads is a significant issue
- ❖ Approximately 40% of fatalities nationwide are on Locally Owned Roadways



# SAFETY CIRCUIT RIDER PROGRAMS: A LIFE-SAVER FOR MANY LOCAL AGENCIES

- ❖ ESTABLISHED PROGRAMS:  
Iowa, Ohio, Indiana, Kentucky
- ❖ RECENTLY ADDED:  
Missouri, Kansas, Colorado, Connecticut, Virginia

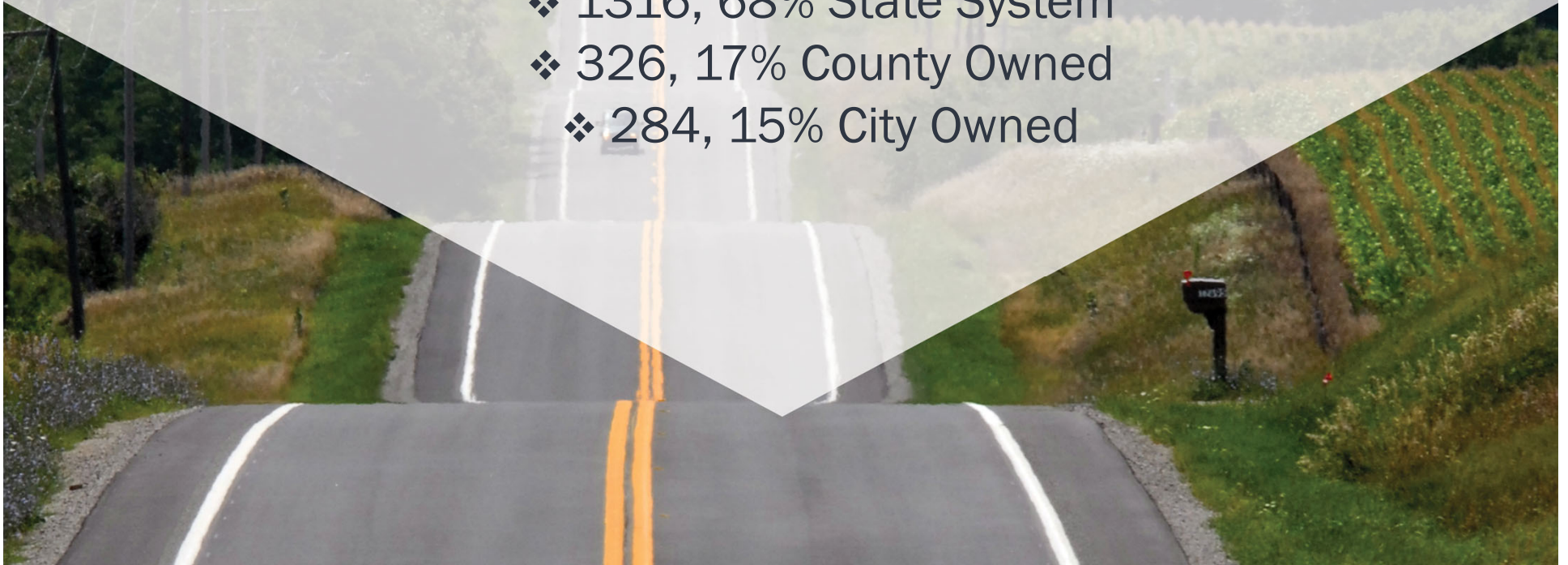





# MISSOURI'S NEED FOR SCR PROGRAM

## Roadway Lane Departure Crashes 2012-2014

- ❖ 1,926 Fatalities and 9,785 Seriously Injured
- ❖ Fatalities by Type of Ownership
  - ❖ 1316, 68% State System
  - ❖ 326, 17% County Owned
  - ❖ 284, 15% City Owned







# **Harry S. Truman Coordinating Council 2015 - Present**

- ❖ 13 Fatalities
  - ❖ 93 Serious Injuries
  - ❖ 641 Minor Injuries
- Total Crashes 2347



## **SCR PROGRAM GOAL**

Drive down Missouri's roadway fatalities and increase safety on locally owned roadways.

The SCR will assist Local Public Agencies in properly identifying, diagnosing and treating transportation safety issues.





# FREE Technical Assistance

The technical assistance through the SCR Program is free to eligible LPAs

The SCR Program is currently funded by a STIC Grant on a part-time basis for the first two years.

Dependent upon program success, it may be fully funded by other sources on a full-time basis thereafter.

Does **not** provide signed and sealed engineering documents.



## Technical Assistance Available to:

Local Road and Bridge Agencies and  
Public Works and Street Departments with  
limited or no in-house transportation safety  
engineering resources.







# SERVICES

- ❖ Provide Information related to local road safety
- ❖ Suggest appropriate data-driven countermeasures
- ❖ Promote innovations at the local level
- ❖ Promote technologies and provide technical assistance focusing on signing and pavement markings
- ❖ Provide guidance to apply for additional funding sources for safety projects including TEAP, TAP, AID, Demo, STIC Incentives, BEAP, HSIP, etc
- ❖ Assist qualifying LPAs to:
  - ❖ Acquire local crash data
  - ❖ Perform informal safety reviews
  - ❖ Identify local safety concerns and appropriate applicable countermeasures
  - ❖ Develop Local Road Safety Plans to implement low-cost countermeasures

# COUNTERMEASURE EXAMPLES

- ❖ Add Chevrons, Sign Replacements
- ❖ Ensure proper Sign Retro-reflectivity
- ❖ Fill edge ruts
- ❖ Plumb Signs
- ❖ Add retroreflective surface to post
- ❖ Add delineators
- ❖ Install breakaway signposts
- ❖ Remove Trees from clear zone
- ❖ Move Utility Poles
- ❖ Update or add guardrail end treatments
- ❖ Add lighted beacons
- ❖ Install larger signs with increased visibility







## PUBLIC WORKS AND ENGINEERING DEPARTMENTS

- Use data-driven safety analysis to identify, prioritize and quantify safety impacts of roadway improvements.
  - Conduct road safety assessments.
  - Establish safe, reasonable and consistent speed limits for specific roadway segments.
  - Prioritize safety improvements based on expected reductions in fatal and serious injury crashes.
  - Adopt a “safe system” mindset, evaluating all projects for safety improvements.
  - Implement a Safety Circuit Rider program to assist local agencies with data analysis.
- Reduce lane departure and run-off-road crashes through engineering countermeasures, such as:
  - Chevrons and curve warning signs.
  - Centerline and edgeline markings.
  - Centerline and edgeline rumble strips.
  - Enhanced roadside delineation.
  - High friction surface treatment in curves.
  - SafetyEdge<sup>SM</sup> design for all paving operations.
  - Shoulder areas or widened clear zones adjacent to the roadway.
  - Removing, relocating or shielding fixed objects and potential hazards.
- Reduce intersection crashes by improving visibility, simplifying driver decisions and reducing conflict points:
  - Advanced warning signs for inconspicuous intersections.
  - Retroreflective backplates on signals.
  - Dedicated turn lanes.
  - Restricted turning movements (right-in, right-out only; roundabouts; J-turns).
  - Improve sight distance at intersections, including rail crossings.
  - Keep vegetation trimmed so that signs and intersections are visible.
  - Protected left turn signal phasing for high-volume conflicting movements.
  - Increased spacing between intersections.
  - Calculate and implement yellow change intervals for all signalized intersections based on location-specific details.
  - Advanced signal systems that dynamically adjust timing plans based on conditions.
  - Acceleration lanes for at-grade entrances onto high-volume or high-speed roadways.
  - Expand current light and gate projects at rail crossings.
  - Close rail crossings or create grade separated intersections at rail crossings.

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## PUBLIC WORKS AND ENGINEERING DEPARTMENTS

- Provide safer facilities and accommodations for pedestrians and non-motorized users:
  - High-visibility and/or raised crosswalks.
  - Pedestrian refuge islands at wider crossings.
  - Pedestrian safety beacons, such as rapid rectangular flashing beacons or HAWK signals.
  - Leading pedestrian intervals at signalized intersections.
  - Pedestrian countdown heads at signalized intersections.
  - Road diets and/or traffic calming features.
  - Bicycle lanes/facilities.
  - Roadway lighting.
  - Enhanced signing and marking.
- Adequately communicate information for construction projects and new designs.
  - Design work zones to ensure advance warning, visibility and safe passage for all road users, including the use of "smart work zones" when appropriate (changeable message signs, queue warning systems, intrusion alerts, etc.).
  - Require the use of high-visibility signs in good condition and high-visibility, reflective personal protection equipment in work zones.
- Provide educational materials and/or simulations to explain new designs considered complex, intimidating or less safe by the public.
- Take advantage of technology solutions to reduce the likelihood of crashes.
  - Use intelligent transportation systems to detect and warn of high-risk or adverse conditions.
  - Support ongoing implementation of crash avoidance systems in vehicles by maintaining retroreflectivity levels for signs and markings and by sharing traveler information and traffic control data with mobile providers.
- Integrate safety into routine planning processes.
- Implement strategies for older drivers included in the Handbook for Designing Roadways for the Aging Population.
- Install transportation systems management and operations strategies that can improve roadway safety for work zones and traffic incident management areas.

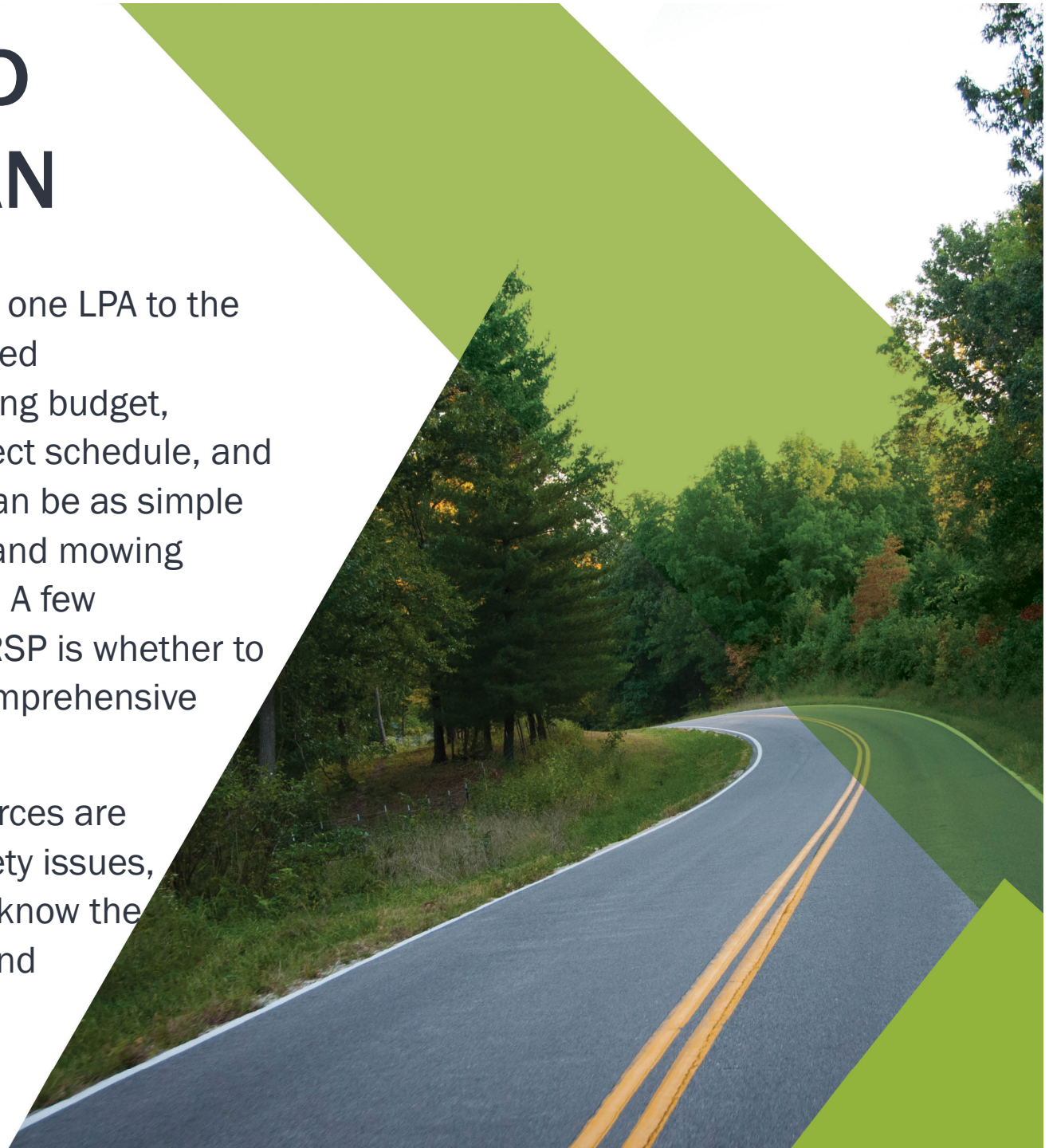




# LOCAL ROAD SAFETY PLAN

LRSPs can vary widely from one LPA to the next. It can be a very detailed comprehensive plan including budget, design or construction project schedule, and maintenance issues, or it can be as simple as noting striping, signing, and mowing schedules and/or budgets. A few considerations in type of LRSP is whether to utilize spot, systemic, or comprehensive countermeasures.

Whether funding and resources are available to address all safety issues, it is in good stewardship to know the state of your local system and have needs and potential solutions identified.



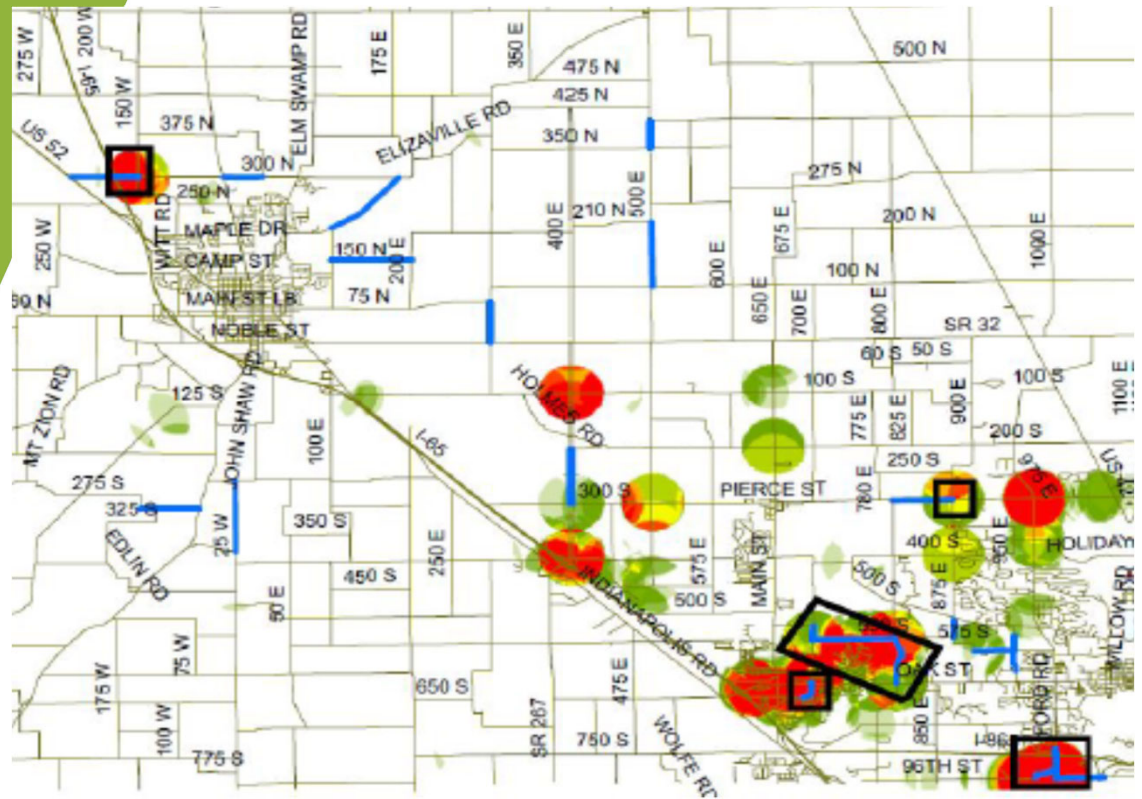
# LOCAL ROAD SAFETY PLAN

- ❖ Plays a significant role in enhancing transportation safety and reducing fatalities nationwide
- ❖ Systematically identifies and analyzes safety problems and recommends safety improvements
- ❖ Offers a proactive approach to addressing safety needs
- ❖ Allows LPAs to more readily address safety issues on their system.
- ❖ Assists in conveying the safety needs and subsequent resource needs to those in decision making roles
- ❖ Allows Local Public Agencies (LPA) to customize a plan specific to their area, needs, and budget
- ❖ Focused on locally owned roads
- ❖ Data driven





# INDIANA LRSP DATA ANALYSIS MAP



## ORANGE COUNTY

Total Crashes per Mile per 10 years: **2.7**  
Least Crashes/Mile Rank among Rural Counties: **43** (of 66)



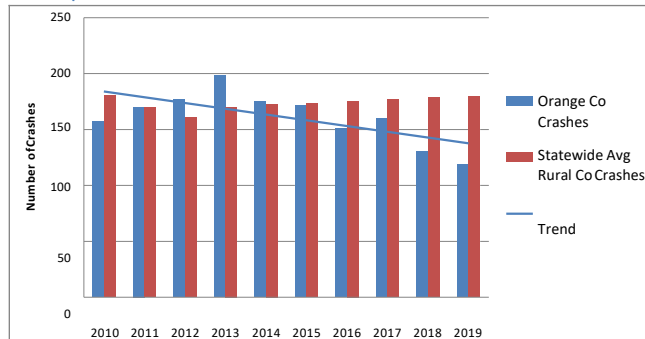
	Total Crashes	Crash Rate	Rural County Average	Number of Crashes per Year									
				2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total Crashes	1608	-	-	157	170	177	198	175	171	151	160	130	119
Fatal Crashes	11	0.68%	0.78%	1	1	0	3	0	1	2	1	0	2
Injury Crashes	347	22%	18%	38	40	43	48	37	33	32	33	23	20
Roadway Departure Crashes	954	59%	53%	99	89	101	111	114	104	100	90	81	65
Animal Crashes	488	30%	31%	40	61	65	79	52	48	35	38	30	40
Angle/Left-Turn Crashes	66	4%	8%	8	3	5	6	4	9	11	6	7	7
Rear-End Crashes	27	2%	3%	6	7	1	1	2	2	1	2	5	0
Dark Roadway Crashes	843	52%	51%	77	100	98	111	91	89	67	75	61	74
Wet Roadway Crashes	498	31%	31%	49	67	47	60	65	51	36	43	42	38
Horizontal Curve Crashes	645	40%	21%	70	67	78	89	84	61	57	51	49	39
Intersection Crashes	155	10%	22%	16	8	10	18	12	12	15	25	18	21
Gravel Roadway Crashes	73	5%	6%	6	7	9	7	8	8	8	8	7	5

\*Includes Run Off Road, Head-On and Sideswipe Crashes

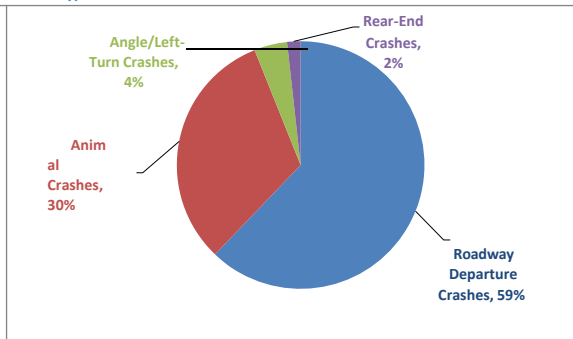
Red percentages above indicate your county is in the top 10 for this category compared to the 65 other rural (non-MPO) IN counties.

This is a 10-year historical average so may not reflect recent conditions.

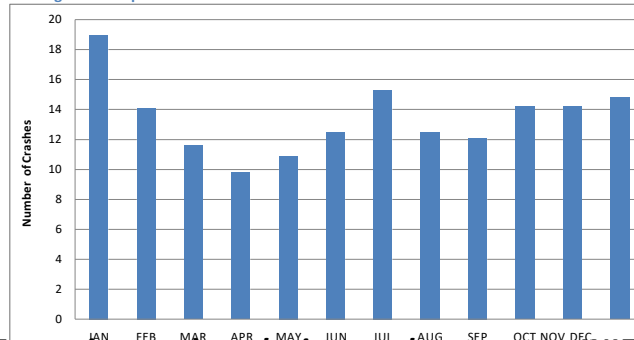
Crashes per Year



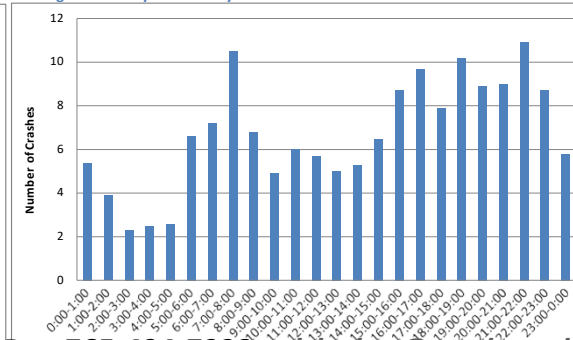
Crash Types



Average Crashes per Month



Average Crashes by Time of Day



For assistance in reducing crashes, contact INLTAP at 765-494-7038 or [slusher@purdue.edu](mailto:slusher@purdue.edu).





# TRAINING

(VIRTUAL &/OR IN PERSON)

- ❖ Introduction to roadway safety and the SCR program services provided
- ❖ Data: Access of existing, Types needed for systemic evaluation, introduction to various data evaluation methods
- ❖ Informal Safety Reviews
- ❖ Local Road Safety Plans: Benefits of and How To's
- ❖ Benefits of systemic improvements; how to determine what improvements and where
- ❖ MUTCD Signing and Striping

# SUCCESSFUL SCR PROGRAM

- ❖ TEAM EFFORT: FHWA, MODOT, LTAP, LPA'S
- ❖ INPUT FROM LOCAL AGENCIES REGARDING TRAINING, RESOURCE, AND DATA NEEDS

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