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TECHNICAL ADVISORY COMMITTEE
November 28, 2018
10:00 – 11:30 am
McCloskey Conference Room (#155)

I. Call to Order and Introductions

II. Approval of Minutes

III. Communications from the Chair and Vice-Chair

IV. Reports from Officers and/or Committees

V. Reports from Staff
   a. I-69 Update – Substantial Completion

VI. Old Business
   a. Complete Streets Policy – Adopted November 2018
   b. BMCMPO C.Y. 2013-2015 Crash Report – November 2018

VII. New Business
   a. FY 2018-2021 Transportation Improvement Program Amendments*
      i. DES#1801834 – Rural Transit - Operating Assistance
      ii. DES#1801902 – Rural Transit - Operating Assistance
      iii. DES#1802041 – Rural Transit - Operating Assistance
      iv. DES#1802042 – Rural Transit - Operating Assistance
      v. DES#1801850 – Rural Transit - Surveillance Equipment
      vi. DES#1801864 – Rural Transit - Two Large Replacement Transit Vehicles
      vii. DES#1801900 – Rural Transit – Two Large Replacement Transit Vehicles

   b. FY 2020-2024 Transportation Improvement Program – Call for Projects

VIII. Communications from Committee Members *(non-agenda items)*
   a. Topic suggestions for future agendas

IX. Upcoming Meetings
   a. Policy Committee – January 11, 2019 at 1:30 p.m. (Council Chambers)
   b. Technical Advisory Committee – January 23, 2019 at 10:00 a.m. (McCloskey Room)
   c. Citizens Advisory Committee – January 23, 2019 at 6:30 p.m. (McCloskey Room)

Adjournment

**Action Requested / Public comment prior to vote (limited to five minutes per speaker).*
Auxiliary aids for people with disabilities are available upon request with adequate notice. Please call 812-349-3429 or e-mail human.rights@bloomington.in.gov.

FOR IMMEDIATE RELEASE

I-69 Section 5 to be at interstate speed on Monday, Nov. 5

Motorists urged to follow posted speed limits and be aware of temporary restrictions

BLOOMINGTON, Ind. (November 2, 2018) – Over the weekend crews will begin pulling barrels off of mainline I-69 and uncovering speed limit signs throughout the corridor. Motorists can anticipate interstate speeds beginning on Monday, November 5.

The speed limit will be 55 miles per hour in Bloomington proper between Rockport Road and Kinser Pike, a distance of just under eight miles. The speed limit increases to 70 miles per hour between Kinser Pike and Indian Creek, a distance of more than 13 miles.

The freeway ends just north of the Liberty Church interchange, and northbound motorists should be prepared to reduce speeds as they approach Martinsville.

There will continue to be intermittent lane restrictions on I-69 through November for punch list work items. Those restrictions will be for short distances and clearly marked. Motorists should be prepared to reduce speed to 55 miles per hour in areas where work is being done.

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Bloomington-Monroe County
Metropolitan Planning Organization

Complete Streets Policy

November 2018

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Bloomington-Monroe County Metropolitan Planning Organization
Complete Streets Policy

(BMCMPO Policy Committee Adoption - November 2018)

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I. DEFINITION[1]

Complete streets are roadways designed to accommodate all users, including, but not limited to, pedestrians, bicyclists, users of public transit, and individual mobility devices, people with disabilities, the elderly, motorists, freight providers, emergency responders, and adjacent land users[2]. Through complete streets, the safety and mobility for vulnerable road users is as much of a priority as all other modes.

II. APPLICABILITY[3]

This policy shall apply to each of the following:

1. All new construction and reconstruction/retrofit of local roadways that will use federal funds through the Bloomington-Monroe County Metropolitan Planning Organization (BMCMPO) for any phase of project implementation including planning, design, right-of-way acquisition, construction, or construction engineering. This includes all maintenance and ongoing operations projects such as resurfacing, repaving, restriping, rehabilitation or other types of changes to the transportation system or; [4]
2. Local roadway projects that are included in the Transportation Improvement program (TIP) *and* are not past the Preliminary Field Check Phase or more than thirty percent (30%) complete with design at the time this policy is adopted or;
3. Local roadway projects where the BMCMPO has the programming authority to allocate federal funding.
4. Projects which are beyond thirty percent (30%) complete with design are still bound to comply with the 2009 Complete Streets Policy.

III. VISION AND PURPOSE

This Complete Streets Policy is written to empower and direct residents, elected officials, government agencies, planners, engineers, and architects to use an interdisciplinary approach to incorporate the needs of all users into the design and construction of roadway projects funded through the Bloomington/Monroe County Metropolitan Planning Organization (BMCMPO).

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[1] New heading.
[2] Unchanged.
[3] Unchanged.
[4] Formerly excluded resurfacing activities that do not alter the current/existing geometric designs of a roadway

The Complete Streets concept is an initiative to design and build roads that adequately accommodate all users of a corridor, including pedestrians, bicyclists, users of mass transit, people with disabilities, the elderly, motorists, freight providers, emergency responders, and adjacent land users. This concept dictates that appropriate accommodations be made so that all modes of transportation can function safely, comfortably and independently in current and future conditions. A Complete Streets policy can be adapted to fit local community needs and used to direct future transportation planning. Such a policy should incorporate community values and qualities including environment, scenic, aesthetic, historic and natural resources, as well as safety and mobility. This approach demands careful multimodal evaluation for all transportation corridors integrated with best management strategies for land use and transportation. [5]

The desired outcome of this Complete Streets Policy is to create an equitable, balanced and effective transportation system for all types of users that is integrated with adjacent land uses where every roadway user can safely and comfortably travel throughout the community.[6]

The goals of this Complete Streets Policy are:

1. To ensure that the safety and mobility of all users of the transportation system are accommodated, including pedestrians, bicyclists, users of mass transit, people with disabilities, the elderly, motorists, freight providers, emergency responders, and adjacent land users;

2. To incorporate the principles in this policy into all aspects of the transportation project development process, including project identification, scoping procedures and design approvals, as well as design manuals and performance measures;

3. To create a comprehensive, integrated, and connected transportation network that supports compact, sustainable development;

4. To ensure the use of the latest and best design standards, policies and guidelines;

[5] Unchanged
[6] New.

5. To recognize the need for flexibility to accommodate different types of streets and users;

6. To ensure that the complete streets design solutions fit within the context(s) of the community.

7. To ensure equity for all people who use the transportation network, regardless of race, income or physical ability[7].

IV. POLICY

1. Roadway projects shall appropriately accommodate the safety and comfort of all users of the transportation system, including pedestrians, bicyclists, users of mass transit, people with disabilities, the elderly, motorists, freight providers, emergency responders, and adjacent land users. [9] It is important to remember that vulnerable road users have less crash protection than people contained inside vehicles and therefore have a higher risk of being injured or killed in the event of a collision due to the lack external crash protection provided by a car.

2. The BMCMPO will promote the complete streets concept throughout the region and, therefore, encourages and recommends that all local MPO partner agencies adopt their own comprehensive complete streets policy that applies to projects not funded through the MPO[10].

3. Complete streets solutions shall be developed to fit within the context(s) of the community and those solutions shall be flexible so that the vision and goals of the BMCMPO Metropolitan Transportation Plan (MTP) can be met.[11]

4. The Local Planning Agency (LPA) shall identify anticipated phases and key milestones of project development.[12]

5. The LPA shall create a project specific community engagement plan

[7] New goal.
[9] Unchanged.
[10] New.
[11] Unchanged.
[12] Unchanged.

6. The LPA shall maintain open lines of communication with key party/agency/interest groups and shall identify and maintain a key stakeholder list.[13]

7. Every project shall ensure that the provision of accommodations for one (1) mode does not prevent safe and comfortable use by another mode[14].

8. Every project shall provide and maintain accommodations for all modes of transportation to continue to use the roadway safely and efficiently during any construction or repair work that encroaches on the right of way, sidewalk, and multiuse path[15]. For instances where the full closure of a roadway is necessary to complete construction work, detour routes for all modes shall be established and signed using appropriate traffic control signage.

9. All projects shall make use of the latest and best design standards, policies, and guidelines[16].

10. Projects sponsored by the Indiana Department of Transportation (INDOT) that are located within the BMCMPO urbanizing area are strongly encouraged to comply with INDOT's self-adopted complete streets policy[17]

V. PROCESS

Transportation Improvement Program (TIP) Development

In response to a BMCMPO issued Call for Projects for any roadway project that seeks to use federal funding and be programmed in the TIP, the Local Public Agency (LPA) shall submit a completed TIP application form. The LPA shall submit the following information to the BMCMPO staff:

a. A detailed project location map and project description (e.g. project scope, reconstruction/new construction, specify facilities for each mode);

b. A detailed purpose and need;

[13] Unchanged
[14] New.
[15] New.
[16] Unchanged, except eliminates: "The Local Public Agency (LPA) shall also retain justification and design decision authority over its projects".
[17] New.

c. Clearly relate the purpose of a project to the MTP and any other existing plans and policies (e.g. MPO Crash Report);

d. The intent for the project to be Complete Streets Compliant or to seek a Complete Streets Exception[18];

e. The amount of federal funding requested by phase (e.g. preliminary engineering, rights of way, construction, construction inspection);

f. The anticipated dates for project design initiation and construction contract letting;

g. The project stakeholder list or key party/agency/interest group identification list including any underrepresented groups or communities;

h. The public participation process with goals to attain (e.g. public meeting dates and what will be accomplished). It is best not to come to the public to simply present pre-established goals but rather to encourage participation and dialogue that leads to useful information. LPA's should be prepared to discuss constructively what the public cares about and ask for ideas;

i. Contact information for the project manager.

Project Selection Process and Criteria[19]

BMCMPO staff shall evaluate project applications based on the Project Prioritization Criteria found in *Section X. Project Prioritization Criteria*.

The BMCMPO staff will forward the prioritized list and corresponding score sheets for each project to the committees of the MPO as a recommendation for final decision. This list of prioritized projects is not intended to serve as a definitive decision-making tool but rather as guidance for programming projects into the TIP.

Community engagement for project programming shall occur in accordance with the BMCMPO Public Participation Plan.

[18] Changed "exemption" to "exception"
[19] New.

Post - Transportation Improvement Program (TIP) Adoption

1. **Community Engagement**
   Maintaining a direct line of communication between residents and decision makers can improve outreach efforts and ultimately the projects themselves.

   a. The LPA shall update the purpose and need of the project, if necessary, following initial public outreach as established in the original TIP application.

   b. The LPA shall utilize a participatory design approach and engage the community and the MPO Citizen's Advisory Committee (CAC) early in the project design process.

   c. At least one (1) public meeting is required, with the expectation that more may be necessary depending on factors such as project cost, size, or scope.

   d. The LPA shall engage underrepresented communities and stakeholders identified in the original TIP application.

   e. Outreach strategies should occur at convenient times for the general public and at locations making use of easy and natural gathering spaces such as neighborhood association meetings, community centers, public libraries, or farmers' markets.

2. **Complete Streets Design Guidance**[20]
   Final design plans for all projects will be context-sensitive with the adjacent land use while incorporating Americans with Disabilities Act (ADA) compliant design standards. Each project must be considered both separately and as part of a connected network to determine the level and type of project necessary for the street to be complete. LPA's are strongly encouraged to utilize a participatory design approach to project development.

   LPA's shall use the latest and best design standards available with the understanding that some design standards are required such as those set by the Indiana Department of Transportation (INDOT). Other design guides include, but are not limited to:

   a. U.S. Access Board Public Right-of-Way Accessibility Guidelines (PROWAG),

[20] New in that specific design guides are called out.

b. National Association of City Transportation Officials (NACTO) Urban Street Design Guide,

c. NACTO Urban Bikeway Design Guide,

d. Institute of Transportation Engineers (ITE) Designing Walkable Urban Thoroughfares: A Context Sensitive Approach

e. American Association of State Highway Transportation Officials (AASHTO) Guide for the Planning, Designing and Operating Pedestrian Facilities

f. AASHTO Guide for the Development of Bicycle Facilities

g. AASHTO Green Book

h. Manual on Uniform Traffic Control Devices (MUTCD) – federal and Indiana Supplement

VI. EXCEPTIONS[21]

1. Approval Process

a. LPA's requesting a Complete Streets policy exception shall submit clear and supportive documentation for justifying the exception.[22]

b. A fourteen (14) day public comment period shall precede any final decisions made by the Policy Committee. The public shall be notified via legal notices in the newspaper, on the MPO website and via the MPO contact list.[23]

c. Exceptions to this policy shall be approved by resolution of the MPO Policy Committee with guidance from the Technical and Citizen's Advisory Committees and the public at large. [24]

d. The BMCMPO Policy Committee shall make a decision to certify or not certify an exception under certain circumstances, including the following[25]:

[21] New.
[22] New.
[23] New.
[24] New.
[25] Unchanged.

e. The project involves a roadway that bicyclists and pedestrians are prohibited by law from using. In such case, efforts should be made to accommodate bicyclists and pedestrians elsewhere;

   i. There are extreme topographic or natural resource constraints;

   ii. The Metropolitan Transportation Plan's twenty (20) year or greater Average Daily Traffic (ADT) projection is less than 1000 vehicles per day;

   iii. When other available means or factors indicate an absence of need presently and in the twenty (20) year or greater forecast horizon;

   iv. A reasonable and equivalent alternative already exists for certain users or is programmed in the TIP as a separate project;

   v. The project is not a roadway improvement project and/or the BMCMPO has no programming authority (e.g. State, Bloomington Transit, Rural Transit, and other projects).

f. No project shall be granted an exception to any criteria that opposes any item in Section II. Applicability.

2. Appeals Process

Project sponsors may request a re-review of their projects by the Technical Advisory Committee (TAC) subject to the following:

a. All appeals will be heard and decided upon by a quorum of the TAC on an as needed basis.

b. The project sponsor shall submit adequate information to explain and substantiate the need for an exception.

c. BMCMPO staff will review the request initially and provide a report with recommendations to the TAC in advance of the regular meeting.

d. Members with conflicts of interest on a particular project must recuse themselves from deliberation on that project.

e. A sponsor may appeal only once to the TAC per special case before the decision rests. A sponsor may not appeal to any other committee of the MPO thereafter.

NEXT STEPS[26]

1. **Update MPO Plans and Documents.** The MPO should update the *Public Participation Plan* to coincide with this Complete Streets Policy within nine (9) months of the adoption of this policy.

   The MPO should update the *Metropolitan Transportation Plan* (MTP) to coincide with this policy and reevaluate the MTP projects utilizing the project selection process and criteria in this policy. The recommended Update should occur within one (1) year of the adoption of this policy.

2. **Education and Training**[27] Education about complete streets roadway design best practices for community members and decision makers is essential. The BMCMPO encourages professional development and training on complete streets and active transportation issues for any MPO representative and staff including, but not limited to LPA project managers, members of the Policy Committee, the Technical Advisory Committee, the Citizens Advisory Committee, and MPO staff. These individuals are encouraged to attend at least one (1) of the following opportunities per year: the annual Indiana MPO Conference, the Indiana Walk & Bike Summit, the annual Purdue Road School as well as any other complete streets related conferences, webinars, workshops and seminars that sponsored by America Walks, Smart Growth America, the Institute of Transportation Engineers, the American Planning Association, and the Congress for the New Urbanism.

3. **Integrate Transportation and Land Use.** The BMCMPO along with the LPA's should create place-based street typologies to ensure sound transportation project decisions are made in conjunction with sound land use decisions. Place-based street typologies should be adopted/updated along with every MTP.

VII. EVALUATION

1. **Complete Streets Policy.** The BMCMPO shall, at a minimum, evaluate this policy prior to the adoption of every new TIP[28]. This evaluation shall include recommendations for amendments to the Complete Streets Policy and subsequently be considered by the BMCMPO Citizens Advisory Committee, Technical Advisory Committee and Policy Committee. Recommendations for

[26] New.
[27] New.
[28] Changed from "long range transportation plan" to "transportation improvement program"

amendments shall be distributed to the Local Public Agencies for review prior to consideration by the BMCMPO Committees.

2. ***Post-Construction Evaluation of Projects.*** The BMCMPO may evaluate projects using the performance measures in Section IX to understand the outputs and outcomes of transportation design, scope, and ultimately programming decisions.

VIII. PERFORMANCE MEASURES[30]

The intent of this policy is the creation of a transportation system that accommodates all users and modes. The performance of complete streets planning and this Complete Streets Policy will be measured via the metrics below and made available publicly. Data will be presented using trend patterns with the intent to inform the public and decision makers about transportation project funding and design. The adage "what gets measured gets done" is important to remember when measuring the outcomes and outputs of transportation project decisions.

Table 1, *Recommended Place Measures and Metrics*, is inspired, adapted by and adopted from Evaluating Complete Streets Projects: A guide for practitioners, a resource created by American Association of Retired Persons (AARP) and Smart Growth America (SGA) for measuring the results of alternative transportation projects. Place measures fall under the macro-level headings of "Place", "Crash Risk", and "Equity." Application scales consider project and network levels. Detailed applicable project and network "metrics" represent the foundation of each Place Measure and relevant application scale.

[30] New.

Table 1. Recommended Place Measures and Metrics*

PLACE MEASURE	APPLICATION SCALE	METRIC
PLACE Being aware of community context, including existing and plane land use and buildings can result in streets that are vital public spaces. Place-based focused measurements ensure a product that is compatible and enhances the community.		
Quality of bicycling environment	Project	• Width of bicycle facilities • Pavement condition of bicycling facility • Bicyclist level of comfort. Comfort is in accord with separation of traffic, volume and speed of cars • Right turn on red restrictions
Quality of pedestrian environment	Project	• Crossing distance and time • Presence of enhanced crosswalks • Wait time at intersection • Width of walking facility • Right turn on red restrictions • Planting of new or maintaining existing trees
Quality of transit environment	Project	• Transit Level of Service/Multimodal Level of Service (MMLOS) at segment and/or intersection • Quality of accommodations for passengers at stops • Presence of wayfinding and system information • Real-time arrival information • Off-board payment option
Resident participation	Project	• Number of responses gathered • Number of people at meetings
Quality of automobile trips	Project	• Travel lane pavement condition
CRASH RISK Safe travel is a fundamental transportation goal. Safety measures should watch for elements associated with injurious crashes and those associated with perceptions of safety.		
Compliance with posted speed limit	Project	• Percentage of drivers exceeding the posted speed limit • Match between target speed, design speed, and 85th percentile
Crashes	Project	• Number of crashes by mode on project (before and after) • Crash severity by mode and location
Crashes	Network	• Total Number • Rate and location by mode
Fatalities	Project	• Number of fatalities by mode on project (before and after)
Fatalities	Network	• Number of fatalities suffered by all modes

Table 1. Recommended Place Measures and Metrics (continued)

PLACE MEASURE	APPLICATION SCALE	METRIC
EQUITY Transportation services impact some populations and neighborhoods more than others. In project selection and evaluation, the distribution of impacts and benefits should be looked at for traditional disadvantage populations.		
Auto trips	Project	• Driving trips as portion of total trips along project
Auto trips	Network	• Driving trips to primary and secondary schools • Vehicle Miles Traveled (VMT) per capita • Driving commutes to work as portion of total commutes to work
Bicycle trips	Project	• Bicycling trips as portion of total trips along project
Bicycle trips	Network	• Bicycling trips as portion of total trips • Bicycling commutes to work as portion of total commutes to work
Transit trips	Network	• Transit trips as portion of total trips • Transit commutes to work as portion of total commutes to work
Walk trips	Project	• Walk trips as portion of total trips along project
Walk trips	Network	• Walk trips as portion of total trips in community • Walk commutes to work as portion of total commutes to work

Source: BMCMPO, November 2018.

IX. Project Prioritization Criteria

The following project prioritization criteria serves the BMCMPO Citizens Advisory Committee, the Technical Advisory Committee, and the Policy Committee as a guiding prioritization framework for the placement of projects into the Transportation Improvement Program (TIP). The BMCMPO is not bound by any outcomes of this process.

Table 2. BMCMPO Transportation Improvement Program – Project Prioritization Criteria

BMCMPO TIP - Project Prioritization Criteria		
	Weighting	**Yes = 1, No = 0**
System Preservation and Maintenance		
Project improves upon *existing* infrastructure or serves to retrofit missing infrastructure (e.g. filling in sidewalk gaps)	15%	
Project addresses a maintenance need (e.g. repaving, bridge repair)		
Project is located within existing right of way		
	Total	**0**
Safety		
Project addresses a known high crash risk location	20%	
Project location is identified in the most recent MPO Crash Report's top 50 crash locations		
Project location is identified in the most recent MPO Crash Report's top 15 bicycle and pedestrian crash locations		
Project incorporates strategies that reduce crash risk		
Geometrical improvement for motorized safety		
Geometrical Improvement for non-motorized safety		
Signalization Improvement		
Signage/Wayfinding		
Project improves safe travel to nearby schools (within 1 mile)		
Other improvements with rationale as to how the project reduces crash risk		
	Total	**0**
Multi-Modal Options		
Project incorporates Multi-Modal solutions	20%	
Project located along existing transit service		
Project located along existing pedestrian/bicycle facility		
Project reduces modal conflict (e.g. traffic signals, grade separation, dedicated lanes)		
Project includes transit accommodations (e.g. pullouts, shelters, dedicated lanes, signal priority)		
Project includes sidewalk improvements		
Project includes bicycle facility improvements		
Project contains high comfort bicycle infrastructure appropriate to facility function (e.g. protected bike lane, multi-use path)		
Project contains high comfort pedestrian infrastructure appropriate to facility function (e.g. curb extension, refuge island, crosswalk enhancement)		
Project makes a connection to an existing active mode facility		
	Total	**0**
Congestion Management		
Project incorporates congestion management strategies	10%	
Grade separation or dedicated travel space for individual modes		
Improvements to access management		
Signalization improvement		
Improves parallel facility or contributes to alternative routing		
Provides capacity for non-motorized modes		
Adds transit capacity		
Other strategies		
	Total	**0**
Health and Equity		
Project provides increased accessibility for people with a low income & minorities	10%	
Project corrects ADA non-compliance		
Project promotes physical activity		
Project reduces vehicle emissions		
Project will not have a negative impact for a natural resource		
Project will not have a negative impact for a socio-cultural resources		
	Total	**0**
Consistency with Adopted Plans		
Project located along planned transit service	10%	
Project located along planned pedestrian/bicycle facility		
Local Master Thoroughfare Plan Priority		
Transit Plan Priority		
Bicycle/Pedestrian Plan Priority		
Project supports goals and principles of MPO Metropolitan Transportation Plan		
Project supports goals and principles of local land use plans		
Other applicable planning documents		
	Total	**0**
Context Sensitivity and Land Use		
Project contributes to the sense of place and matches the surrounding land use	15%	
Project balances the need to move people with other desirable outcomes		
Project involves minimal disruption to the community (e.g. limited land acquisition, limited change in traffic circulation)		
Project is seen as adding lasting value to the community		
Project supports high quality growth and land use principles		
Project improves accessibility and/or connectivity to existing land use development		
Project location supports infill/redevelopment		
Project contributes to transportation network grid development/roadway network connectivity		
	Total	**0**
	Overall Total	**0**

Source: BMCMPO, November 2018.

X. DEFINITIONS

Participatory Design – an approach to project design that actively involves all stakeholders to ensure the final design meets their needs and is usable.

Underrepresented Area – a geographic area that largely consist of marginalized or minority residents.

Vulnerable Road User or Vulnerable User – a person utilizing the right-of-way for transportation purposes whereby the individual is disadvantaged or limited by either the amount of protection in traffic (e.g. pedestrians and cyclists) or by the amount of task capability to smoothly integrate with other types of traffic (e.g. older or younger individuals). Vulnerable Users do not typically have a protective shell and/or move at slower speeds and are thus more susceptible to physical harm in the event of a collision, especially with vehicles with a larger mass.

Bloomington/Monroe County
Metropolitan Planning Organization

Crash Report

Calendar Years 2013 through 2015

November 2018

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Bloomington-Monroe County Metropolitan Planning Organization
2013-2015 Crash Report

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Executive Summary

The Bloomington/Monroe County Metropolitan Planning Organization (BMCMPO) 2013-2015 Crash Report represents a continuation of the MPO's effort to provide an analysis of the crash location causes and trends within Monroe County. This report includes an analysis of raw crash data from the Indiana State Police (ISP) Department ARIES data portal (https://www.in.gov/isp/3147.htm) for Calendar Years 2013, 2014, and 2015.

This crash report prepared by the BMCMPO staff from the ISP raw data provides relevant generalized information for the MPO Citizen's Advisory Committee, the Technical Advisory Committee, and the Policy Committee. The crash report shall additionally achieve distribution to local units of government, Indiana University, and the general public through the BMCMPO website hosted by the Bloomington Planning and Transportation Department.

A summary of the specific calendar year crash trends provided below highlights general information on crash data within Monroe County. Detailed tables, charts, and summaries provided in subsequent chapters highlight information on annual and daily observational trends involving frequency, severity, and other related characteristics of crashes that occurred from 2013 to 2015. Additionally, the Appendix contains locational information of potential interest to decision makers, technical engineering, safety and planning representatives, and the general public.

Summary of Crash Trends from 2013 to 2015

The Indiana State Police, the Monroe County Sherriff's Department, the Town of Ellettsville Police Department, the Indiana University Police Department, and the City of Bloomington Police Department reported a total of 12,538 crashes within public right-of-way corridors between Calendar Years 2013 and 2015 (**Table 1**). This figure represents a 0.72% increase from the previous three-year calendar year 2012-2014 rolling average analysis period that tabulated a total of 12,448 crashes.

Table 1 - Monroe County Crash Trends – Calendar Year 2013 - 2015

Crash Type	2013	2014	2015	Total
Property Damage	3269	3335	3456	10,060
Personal Injury	785	824	849	2,458
Fatal	4	8	8	20
Total	**4058**	**4167**	**4313**	**12,538**

Approximately eighty percent (80%) of the total crashes reported in Monroe County during the Calendar Year 2013 - 2015 investigation period involved property damage or unknown crashes, while the balance of the data reported levels of personal injury and, to a much lesser extent, crashes resulting in fatalities.

Introduction

Mobility is a defining aspect of life in the United States and around the world. Transportation infrastructure investments have led to new opportunities for trade, travel, recreation, relocation, and economic growth. The BMCMPO receives approximately $3.1 million per year of federal transportation funding allocated from the Indiana Department of Transportation (INDOT) for local transportation network investments. Despite this continued investment, tangible and intangible costs attributable to motor vehicle crashes undermine the effectiveness of the local transportation system.

The BMCMPO Crash Reports demonstrate that motor vehicle crashes contribute to a significant loss of life, property, and productivity in Monroe County. A better understanding of crash trends is attainable through continued efforts in crash reporting and analysis. Targeted infrastructure investments should further improve safety on roads within Monroe County.

The purpose of this Crash Report is twofold. First, the Crash Report provides a consistent and straightforward means to disseminate annual crash data for use by any interested individual or organization. Second, the Crash Report provides another useful tool for civil engineers, transportation planners, and local policy makers when considering both funding and design strategies aimed at reducing the frequency and severity of transportation-related crashes. Specifically, the Indiana Department of Transportation and the BMCMPO require Local Public Agencies (LPAs) to use crash data as part of the Highway Safety Improvement Program (HSIP). This program provides federal funding to target areas with high incidences of crashes. The HSIP primary goal is reducing fatal and incapacitating injury crashes. The implementation of effective mitigation strategies further curtail crashes within Monroe County through annual reporting and analysis.

This Crash Report focuses on a three-year period from Calendar Years 2013, 2014, and 2015. By focusing on a longer time horizon, random variations in annual crashes do not unduly influence the trends reported. For instance, annual variations in bicycle and pedestrian crashes, fatalities and incapacitating injuries, and location-specific crashes can be significant, even though there may not be an actual change in the likelihood of those crashes. By using a three-year window, identified trends are more likely to be meaningful by using a three-year analyses window. The crash data tabulated from 2015 alone provide a snapshot of the most recent year.

Methodology and Data Considerations

The data for the Bloomington/Monroe County Crash Report originates from the “Automated Report and Information Exchange System” (ARIES) of the Indiana State Police (https://www.in.gov/isp/3147.htm). This system maintains statewide crash data from law enforcement agency reports dating back to 2003. These Indiana law enforcement report data are organized by collisions, units (vehicles), and individuals. These data elements, related to one another by a common master field (e.g., Master Record Number) offer independent analysis capability. It is possible to retrieve information regarding collisions (e.g., locations and dates of greatest crash frequency), number of vehicles involved, and individuals involved. ARIES additionally enables the performance complex analyses using attributes from each of these entities.

As with any database, the validity of conclusions resulting from the data is contingent upon accurate and complete data entry. Lack of data information from hit-and-run collisions, confusion surrounding alternate names of roads (e.g., Country Club Drive, Winslow Road), misspelled or incorrectly entered street names, GPS errors, and incomplete data entry undoubtedly introduce some error into the results of this report. Therefore, results of the Crash Report should not have a rigid interpretation.

The BMCMPO staff corrected obvious data errors to achieve valid results. Consequently, some minor inconsistencies may be evident when comparing crash reports from prior years. Therefore, the most recently issued Crash Report reflects the best and most accurate crash information. Regardless of methodological changes and slight differences between reports, the overall findings of this report are consistent with those of past years.

Collisions are categorically analyzed given the crash type and severity. If a crash included a moped, motorcycle, bus, and bicyclist or pedestrian, the crash was subsequently classified as a "moped/motorcycle", "bus", "bicycle" or "pedestrian" crash, accordingly, regardless of the number of vehicles involved. If the crash involved only motor vehicles, the "crash modal type" classification identified the number of cars: one car, two cars, or three or more cars (**Figure 1**). The "severity" classification of a collision is dependent upon the most severe injury that resulted from a crash. For example, if a crash resulted in a fatality as well as a non-incapacitating injury, the severity of the crash had an assigned classification as "Fatal Injury." Most data methods used in the report are self-explanatory.

Collisions were analyzed using available geographic, road inventory, and traffic count data. Individual crashes were located according to reported geographic coordinates which were available for more than 93% of all records. A crash frequency was determined for each intersection by tabulating the total number of crashes that occurred within a 250-ft radius of the center of the intersection. Crash rates were determined from available traffic data from the City of Bloomington, the Town of Ellettsville, Monroe County, and the Indiana Department of Transportation using standard adjustments and engineering judgment as necessary.

When reading the Crash Report, it is important to understand the distinction between "crashes" and "individuals." The term "crash" refers to the characteristics of the crash itself under consideration. For example, a "Fatal Injury" column (e.g., "Crash by Type and Severity, 2013-2015") shows how many crashes resulted in a fatal injury; it would be incorrect, however, to interpret this column as the number of fatalities since more than one fatality can result from a single crash.

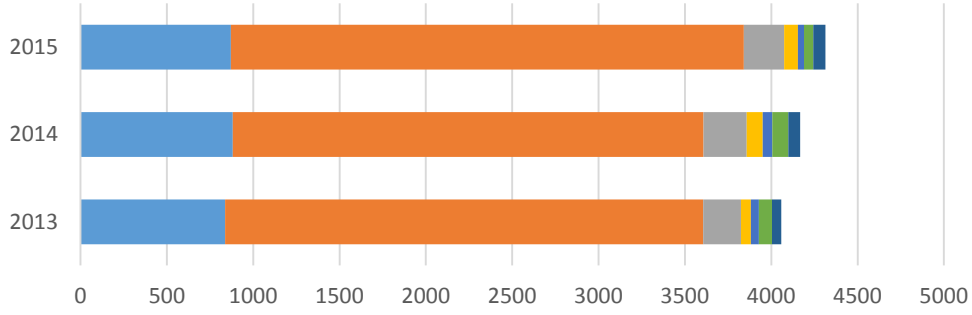
Crash Characteristics

This section provides a summary of crash characteristics in Monroe County, including the type and severity of crashes from 2013-2015. These factors reflect trends in the overall safety of the transportation system.

A further breakdown of the Calendar Year 2013 – 2015 crash totals provides insights into trends involving pedestrians, bicyclists, buses, mopeds/motorcycles, and crashes that resulted in fatalities. Over the course of the three years analyzed, there were twenty (20) fatal crashes resulting in twenty-one fatalities (**Table 2**), slightly fewer than the 24 fatalities reported from 2012 to 2014. Of the twenty (20) fatal crashes, seven (7) resulted from two-car crashes, five (5) were

from one-car crashes, four (4) involved mopeds/motorcycles, and two (2) involved a pedestrian. As has been the case for each of the prior nine (9) years, there were no fatalities involving a bicycle or a bus.

Figure 1 – Crashes by Modal Type – Calendar years 2013 - 2015



	2013	2014	2015
1-Car	838	882	870
2-Car	2768	2726	2972
3+ Cars	218	249	232
Bus	58	94	80
Cyclist	46	56	36
Moped/Motorcycle	77	92	53
Pedestrian	53	68	70

The time distribution of crashes continues to follow a predictable pattern correlating with peak hour and off-peak hour traffic volumes. The greatest number of crashes occurred during weekday rush hours between 4:00 P.M. and 6:00 P.M., with an average slightly greater than one (1) crash per hour for the entire county. There is also a peak from 12:00 P.M. to 1:00 P.M on weekdays. The weekend also follows a similar pattern in terms of frequency of crashes, but the crash rate has a more even distribution through the day and early evening hours. Between the hours of 7:00 PM and 4:00 AM, the weekend experiences a higher crash frequency compared with weekdays. Friday continued to have the highest number of crashes overall, while Sunday had the lowest number of crashes.

State and federal designated highway routes are prominently featured in the list of the highest crash frequency intersections or the total number of crashes over a given time period. Higher traffic volumes on these roads are undeniably the primary factor. INDOT jurisdictional intersections at SR 37 and 3rd Street, SR 45/46 and 10th Street, and SR 37 and Bloomfield Road are consistently high frequency crash locations. These intersections therefore warrant constant monitoring as do several local jurisdictional intersections that exhibit consistently high crash frequencies.

The leading cause of crashes during the Calendar Year 2013-2015 study period was once again a “failure to yield right of way” with 2,274 incidents. Other leading causes include “following too closely” and “unsafe backing”. These causes are addressable through law enforcement and education efforts as well as through selective physical improvements. “Running off the right side of the road” and “speeding in adverse weather” additionally present opportunities for physical

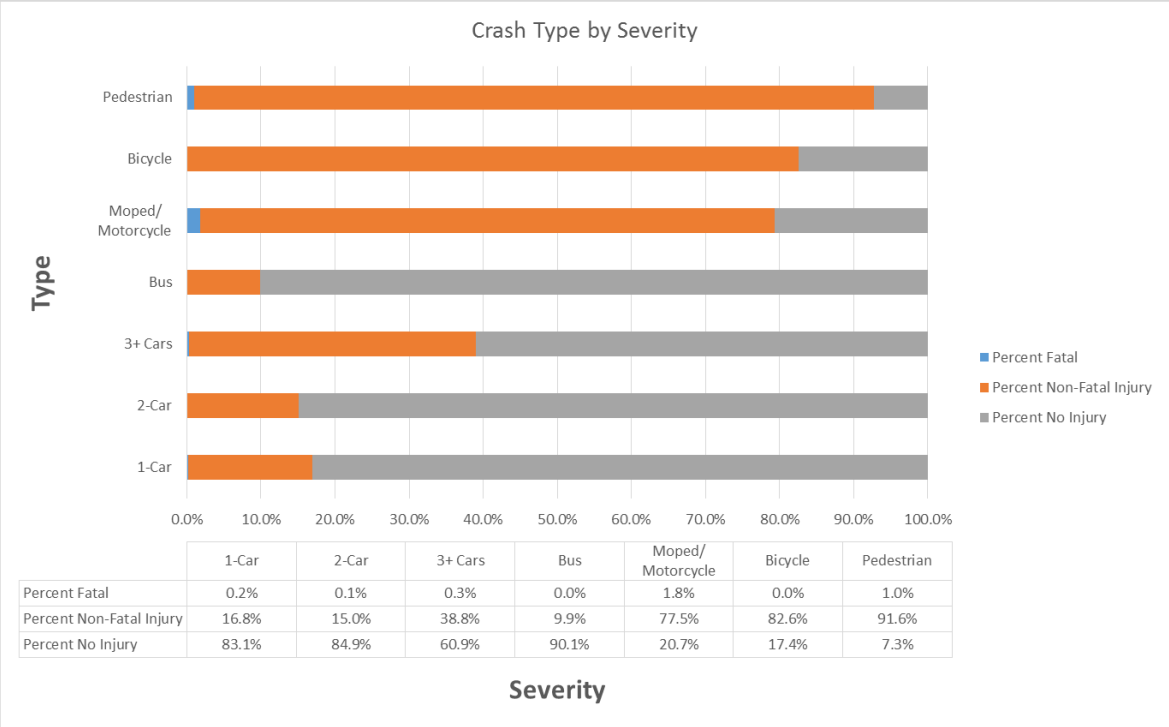
safety improvements, such as guard rails, rumble strips, and interactive signage. These types of improvements warrant further exploration for crash reductions.

Crashes involving pedestrians and bicyclists are considerably important within the BMCMPO given a relatively high number of urbanized area non-motorized trips, the vulnerability to injury of individuals using these modes, and the BMCMPO's goals for increasing walking and bicycling modal shares. Compared to other types of crashes, those involving pedestrians and bicyclists are much more likely to result in a fatality or an incapacitating injury. Reducing the frequency and severity of these crashes is therefore a priority.

Table 2 - Crashes by Type and Severity – Calendar Years 2013-2015

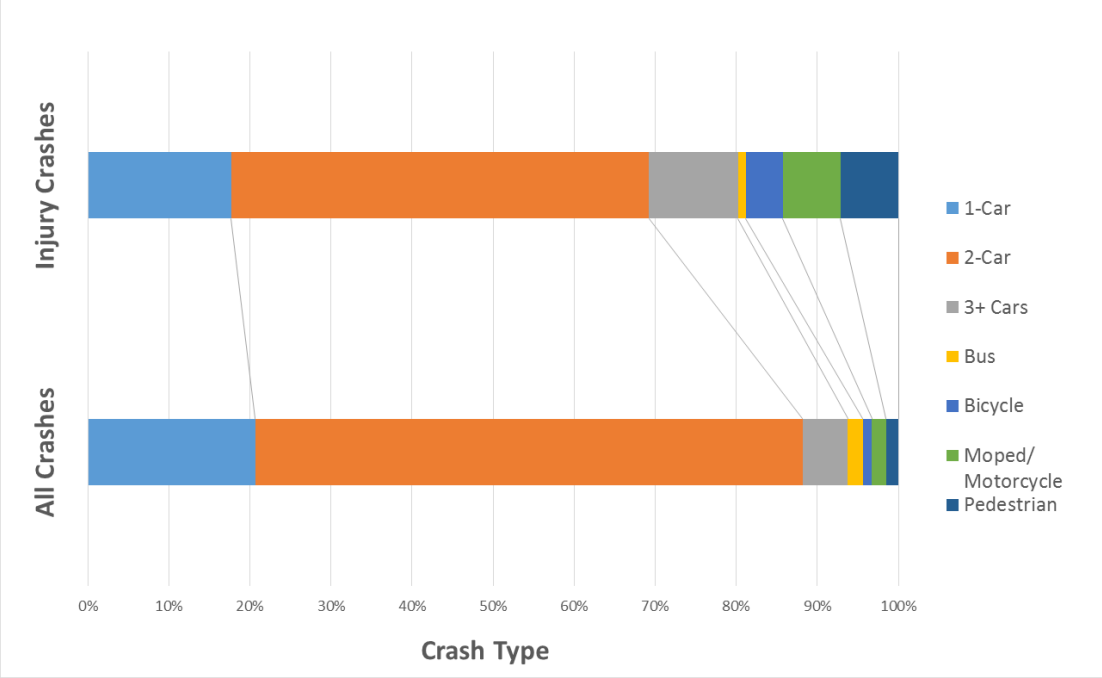
	Crash Type	Severity				Annual Total	Percent of Annual Total
		Fatal	Incapacitating	Non-incapacitating	No injury/ unknown		
2013	1-Car	0	20	118	700	**838**	20.7%
	2-Car	1	35	381	2351	**2768**	68.2%
	3+ Cars	2	7	75	134	**218**	5.4%
	Bus	0	0	2	56	**58**	1.4%
	Cyclist	0	2	35	9	**46**	1.1%
	Moped/Motorcycle	1	10	50	16	**77**	1.9%
	Pedestrian	0	5	45	3	**53**	1.3%
	Total	**4**	**79**	**706**	**3269**	**4058**	100.0%
	Percent of Annual Total	0.1%	1.9%	17.4%	80.6%	100.0%	
2014	1-Car	3	27	115	737	**882**	21.2%
	2-Car	3	45	353	2325	**2726**	65.4%
	3+ Cars	0	9	81	159	**249**	6.0%
	Bus	0	0	12	82	**94**	2.3%
	Cyclist	0	8	40	8	**56**	1.3%
	Moped/Motorcycle	0	16	58	18	**92**	2.2%
	Pedestrian	2	12	48	6	**68**	1.6%
	Total	**8**	**117**	**707**	**3335**	**4167**	100.0%
	Percent of Annual Total	0.2%	2.8%	17.0%	80.0%	100.0%	
2015	1-Car	2	78	76	714	**870**	20.2%
	2-Car	3	187	268	2514	**2972**	68.9%
	3+ Cars	0	49	50	133	**232**	5.4%
	Bus	0	6	3	71	**80**	1.9%
	Cyclist	0	15	14	7	**36**	0.8%
	Moped/Motorcycle	3	24	14	12	**53**	1.2%
	Pedestrian	0	32	33	5	**70**	1.6%
	Total	**8**	**391**	**458**	**3456**	**4313**	100.0%
	Percent of Annual Total	0.2%	9.1%	10.6%	80.1%	100.0%	
3-Year	**Total**	**20**	**587**	**1871**	**10060**	**12538**	
	Percent of 3-Year Total	**0.2%**	**4.7%**	**14.9%**	**80.2%**	**100.0%**	

Figure 2 - Crash Type by Severity – Calendar Years 2013-2015



	1-Car	2-Car	3+ Cars	Bus	Moped/ Motorcycle	Bicycle	Pedestrian
Percent Fatal	0.2%	0.1%	0.3%	0.0%	1.8%	0.0%	1.0%
Percent Non-Fatal Injury	16.8%	15.0%	38.8%	9.9%	77.5%	82.6%	91.6%
Percent No Injury	83.1%	84.9%	60.9%	90.1%	20.7%	17.4%	7.3%

Figure 3 - Crash Type – Calendar Years 2013-2015



Time of Crashes

This section summarizes the number of crashes by hour and day. Law enforcement agencies and emergency responders can use these data relating to the timing of crashes for planning purposes. Additionally, decision makers may use this information in an attempt to reduce peak crash times.

On weekdays, the number of crashes typically peaked in conjunction with the morning rush hour, 7:00 AM to 9:00 AM, and then increased gradually throughout the day until peaking again in conjunction with the evening rush hour, 4:00 PM to 6:00 PM. There was an additional peak at noon around the lunch hour. The late afternoon was the most likely time for a crash to occur, with more than one per hour.

The hourly distribution of weekend crashes exhibits a predictable pattern. Crashes in the late evening and early morning are apparently more common during the weekend, and rush hour peaks were not as prevalent as on weekdays. During the Calendar Year 2013-2015 study period, a greater number of crashes occurred on Fridays than on any other day and the fewest crashes occurred on Sundays (**Figure 4**).

Figure 4 - Crashes by Time of Day – Calendar Years 2013-2015

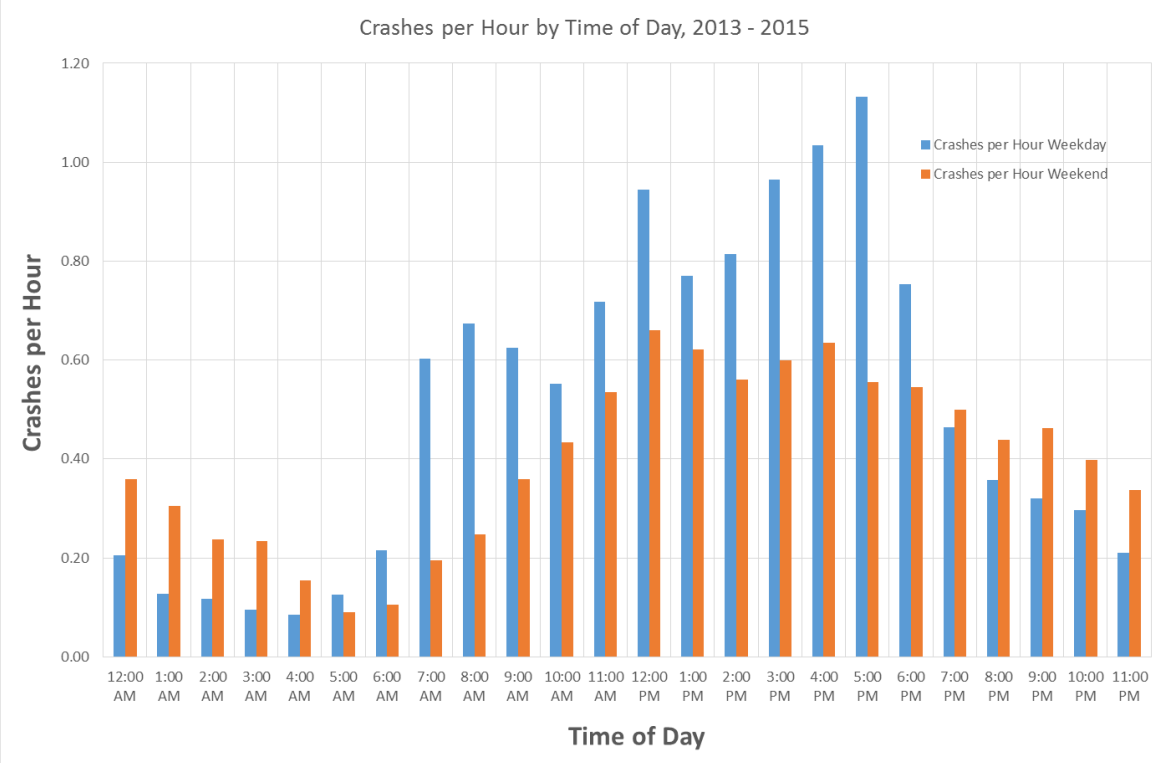
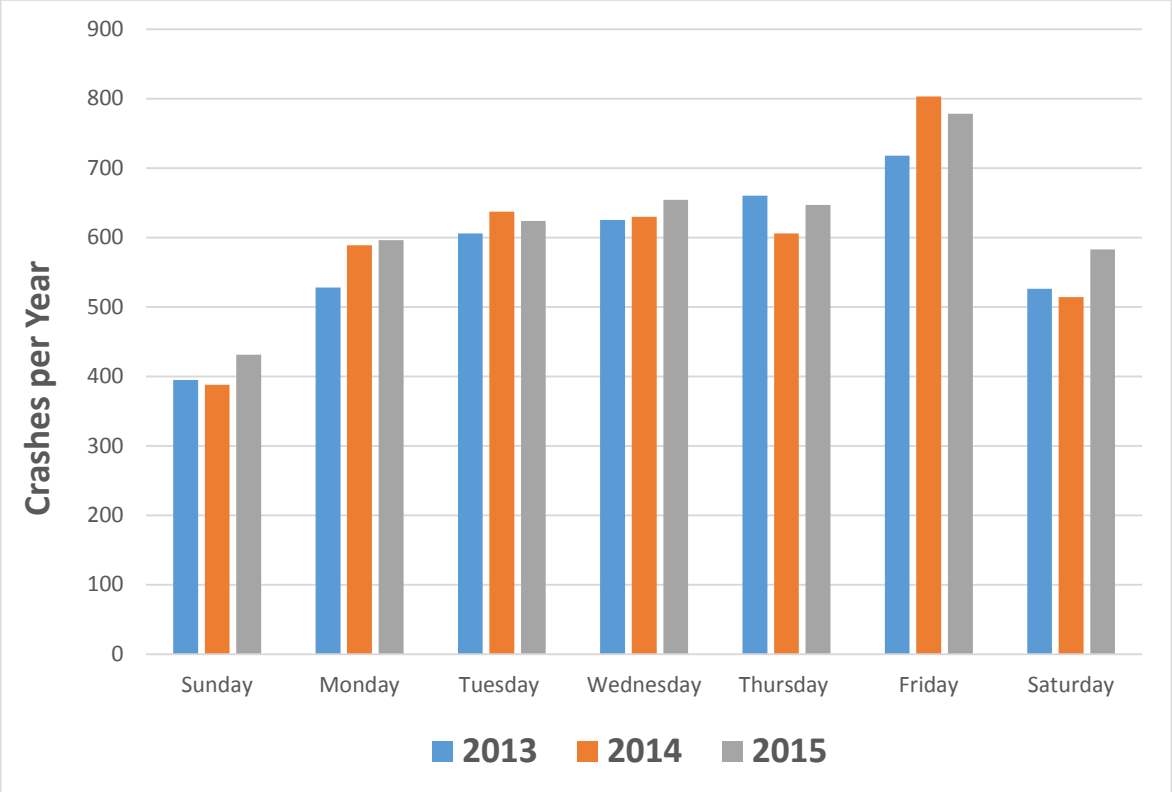


Figure 5 - Crashes by Day of Week – Calendar Years 2013-2015



Crash Locations

This section addresses the spatial distribution of crashes in Monroe County highlighting locations of high crash frequency, crash rates, and crash severity (**Table 3**, **Table 4**, **Table 5**). This identification process used a stepwise approach: (1) ranking the sum total of all C.Y. 2013-2015 all Monroe County intersection crash locations into the "Top 50 Crash Locations," (2) adjusting these crash locations with traffic volume data thereby deriving three-year crash rates, and (3) a derivation of intersection severity rates.

The methodology used in this report does not identify locations which have a higher than expected (i.e. statistically significant) crash totals, crash rates, or severity indices. Future crash reports should therefore consider a comparative analysis of intersections with similar operating characteristics. The BMCMPO staff shall additionally explore a network solution for calculating crash rates at lower crash frequency locations.

Table 3 - Top 50 Crash Locations by Crash Total – Calendar Years 2013-2015

Crash Total Rank	Intersection	Juris-diction	Year			Total
			2013	2014	2015	
1	SR 37 & 3rd Street	INDOT	25	28	36	89
2	SR 46 & Pete Ellis Drive	INDOT	32	27	27	86
3	SR 37 & Bloomfield Road	INDOT	26	33	25	84
4	SR 45 & Gillham Drive	INDOT	28	34	20	82
5	SR 45/46 Bypass & 10th Street	INDOT	26	22	30	78
6	SR 46 & 3rd Street	INDOT	23	20	26	69
7	SR 45 & S Liberty Drive	INDOT	16	22	27	65
8	SR 45/46 Bypass & College Ave/Walnut St	INDOT	16	24	24	64
9	SR 46 & Kingston Drive	INDOT	13	20	31	64
10	SR 45 & Curry Pike/Leonard Springs Road	INDOT	17	25	19	61
10	SR 37 & Tapp Road	INDOT	17	20	19	60
11	SR 45/46 Bypass & Kinser Pike	INDOT	15	23	22	56
12	SR 48 & Curry Pike	INDOT	15	22	18	55
13	Walnut Street Pike & Winslow Road	COB	20	18	14	52
14	SR 45 & Pete Ellis Drive/Range Road	INDOT	17	18	17	52
15	3rd St & Swain Avenue	COB	23	14	14	51
15	SR 48 & Gates Drive	INDOT	15	24	12	51
16	10th St & Union Street	COB	13	15	20	47
16	Grimes Ln & Walnut Street	COB	12	17	18	48
17	2nd St & College Avenue	COB	20	16	9	46
18	3rd St & Jordan Avenue	COB	17	14	15	45
19	17th St & Jordan Avenue	COB	15	13	16	45
20	SR 48 & Liberty Drive	INDOT	13	13	19	44
20	College Ave & Kirkwood Avenue	COB	19	16	8	43
21	3rd St & Fess Avenue	COB	10	10	23	43
22	3rd St & Walnut Street	COB	14	17	11	42
22	Dunn St & Kirkwood Avenue	COB	13	13	16	42

Table 3 - Top 50 Crash Locations by Crash Total – Calendar Years 2013-2015 (Continued)

Crash Total Rank	Intersection	Juris-diction	Year 2013	2014	2015	Total
23	2nd St & Patterson St	COB	13	13	15	41
23	3rd St & College Avenue	COB	18	14	8	40
24	4th Street & Walnut Street	COB	16	6	17	39
25	7th Street & Walnut Street	COB	12	14	10	39
26	Kirkwood Ave & Walnut Street	COB	14	14	11	36
26	SR 45/46 Bypass & 17th Street	INDOT	7	17	12	38
27	10th Street & College Avenue	COB	12	11	15	36
28	3rd Street & Indiana Avenue	COB	15	12	9	36
28	2nd Street & Rogers Street	COB	9	14	13	36
28	Rhorer Road & Walnut Street Pike	MC	7	18	11	35
28	Curry Pike & Vernal Pike	MC	9	16	10	36
28	SR 46 & Centennial Drive	INDOT	8	12	14	35
29	3rd St & Dunn Street	COB	12	12	9	34
29	9th Street & College Avenue	COB	9	11	13	33
30	7th Street & College Avenue	COB	9	15	11	33
31	SR 46 & Smith Road	INDOT	11	11	10	32
31	SR 45/46 Bypass & Dunn St	INDOT	13	11	7	32
	17th Street and Walnut Street	COB	10	14	8	32
32	Walnut St & Country Club Dr/Winslow Rd	COB	13	10	9	32
	10th Street & N Sunrise Drive	COB	7	8	15	31
32	10th Street & Woodlawn Avenue	COB	17	8	7	31
32	3rd Street & Washington Street	COB	9	12	10	31
33	17th Street & Kinser Pike/Madison Street	COB	9	9	13	30
33	SR 46 & Union Valley Road	INDOT	14	7	9	30

Table 4 - Top 50 Crash Locations by Crash Rate – Calendar Years 2013-2015

Crash Rate Rank	Crash Frequency Rank	Intersection	3-Year Total	Juris-diction	Crash Rate
1	5	SR 45 & Gillham Drive	84	INDOT	5.00
2	39	Kirkwood Avenue & Dunn Street	42	COB	3.78
3	20	3rd Street & Swain Avenue	55	COB	3.71
4	20	3rd Street & Fess Avenue	58	COB	3.51
5	4	SR 46 & Pete Ellis Drive	89	INDOT	3.18
6	18	Walnut Street Pike & Winslow Road	56	COB	2.96
7	6	SR 46 & S Kingston Drive	64	INDOT	2.94
8	1	SR 37 & 3rd Street	112	INDOT	2.73
9	16	10th Street & Union Street	51	COB	2.56
10	3	SR 37 & Bloomfield Road	86	INDOT	2.45
11	24	17th Street & Jordan Avenue	45	COB	2.35
12	2	SR 45/46 Bypass & 10th Street	82	INDOT	2.27
13	48	3rd Street & Dunn Street	38	COB	2.18
14	43	3rd Street & Woodlawn Avenue	37	COB	2.15
15	48	10th Street & Sunrise Drive	30	COB	2.09
16	24	10th Street & College Avenue	38	COB	2.05
17	37	3rd Street & Highland Avenue	30	COB	1.95
18	31	Rhorer Road & Walnut Street Pike	32	MC	1.92
19	22	4th Street & S Walnut Street	43	COB	1.91
20	37	14th Street & Walnut Street	30	COB	1.90
21	8	SR 37 & Vernal Pike	90	INDOT	1.88
22	14	SR 45 & Pete Ellis Drive/Range Road	52	INDOT	1.86
23	6	SR 46 & 3rd Street	78	INDOT	1.84
24	9	SR 45 & Liberty Drive	69	INDOT	1.81
25	35	Kirkwood Avenue & College Avenue	44	COB	1.73

Table 4 - Top 50 Crash Locations by Crash Rate – Calendar Years 2013-2015 (Continued)

Crash Rate Rank	Crash Frequency Rank	Intersection	3-Year Total	Juris-diction	Crash Rate
26	43	7th Street & Walnut Street	39	COB	1.63
27	26	2nd Street & College Avenue	46	COB	1.62
28	43	10th Street & Woodlawn Avenue	32	COB	1.60
29	22	Kirkwood Avenue & Walnut Street	36	COB	1.55
30	14	SR 37 & Tapp Road	73	INDOT	1.53
31	11	SR 45/46 Bypass & College Ave/Walnut St	65	INDOT	1.53
32	26	3rd Street & Jordan Avenue	40	COB	1.51
33	31	2nd Street & Patterson Drive	42	COB	1.51
34	10	SR 45/46 Bypass & Kinser Pike	60	IN	1.50
35	48	2nd Street & Rogers Street	40	COB	1.39
36	39	3rd Street & Washington Street	31	COB	1.39
37	31	7th Street & College Avenue	33	COB	1.37
38	43	8th Street & College Avenue	26	COB	1.36
39	13	SR 48 & Curry Pike	55	INDOT	1.32
40	16	SR 48 & Gates Drive	53	INDOT	1.28
41	11	SR 45 & Curry Pike/Leonard Springs Rd	52	INDOT	1.21
42	18	3rd St & College Avenue	41	COB	1.21
43	26	SR 48 & Liberty Drive	45	INDOT	1.15
44	39	SR 45/46 Bypass & 17th Street	36	INDOT	1.11
45	39	Kirkwood Avenue & Rogers Street	30	COB	1.10
46	30	Grimes Lane & Walnut Street	49	COB	1.08
47	48	10th Street & Jordan Avenue	30	COB	1.04
48	36	SR 46 & Smith Road	27	INDOT	0.98
49	43	SR 46 & Smith Pike	35	INDOT	0.90
50	31	Walnut St & Country Club Dr/Winslow Rd	30	COB	0.83

Table 5 - Top 50 Crash Locations by Crash Severity – Calendar Years 2012-2014

Severity Rank	Intersection	Juris-diction	Fatal	Injury	Property Damage	Severity Number
1	SR 37 & 3rd Street	INDOT	0	32	84	186
2	SR 37 & Bloomfield Road	INDOT	0	27	67	148
3	SR 46 & Kingston Drive	INDOT	0	26	57	135
4	SR 37 & Vernal Pike	INDOT	0	23	51	135
5	SR 45/46 Bypass & 10th Street	INDOT	0	14	83	131
6	SR 46 & Pete Ellis Drive	INDOT	0	18	69	123
7	SR 46 & 3rd Street	INDOT	0	15	68	113
8	SR 45/46 Bypass & Kinser Pike	INDOT	1	20	35	107
9	SR 45 & Gillham Drive	INDOT	1	4	80	104
10	SR 45 & Liberty Drive	INDOT	0	12	55	97
10	SR 48 & Curry Pike	INDOT	0	17	37	97
10	Walnut Street Pike & Winslow Road	COB	0	16	34	97
13	SR 45/46 Bypass & College Ave/Walnut St.	INDOT	0	19	36	96
14	4th Street & Walnut Street	COB	0	17	29	89
15	SR 45 & Curry Pike/ Leonard Springs Rd	INDOT	0	14	41	86
16	SR 45 & Pete Ellis Drive/ Range Road	INDOT	0	14	39	84
17	3rd Street & College Avenue	COB	0	16	34	82
18	SR 37 & Tapp Road	INDOT	0	14	39	81
19	2nd Street & Patterson Drive	COB	0	17	22	79
20	3rd Street & Jordan Avenue	COB	0	14	29	71
21	SR 48 & Gates Drive	INDOT	0	9	43	70
22	Grimes Lane & Walnut Street	COB	0	13	27	69
23	3rd Street & Fess Avenue	COB	0	10	38	68
24	10th Street & Union Street	COB	0	6	46	67
25	SR 48 & Liberty Drive	INDOT	0	10	33	66
25	SR 46 & Smith Road	INDOT	0	13	24	66
27	3rd Street & Swain Avenue	COB	0	8	40	64
27	Rhorer Road & Walnut Street Pike	MC	0	11	28	64
29	Kirkwood Avenue & Dunn Street	COB	0	11	24	63
30	7th Street & College Avenue	COB	0	10	29	62
31	10th Street & Jordan Avenue	COB	0	14	19	61
32	2nd Street & College Avenue	COB	0	8	35	59
32	Kirkwood Avenue & College Avenue	COB	0	9	29	59
34	SR 45/46 Bypass & 17th Street	INDOT	0	10	25	58

Table 5 - Top 50 Crash Locations by Crash Severity – Calendar Years 2012-2014 (Continued)

Severity Rank	Intersection	Juris-diction	Fatal	Injury	Property Damage	Severity Number
35	3rd Street & Walnut Street	COB	0	6	36	57
36	10th Street & College Avenue	COB	0	6	38	56
36	17th Street & Jordan Avenue	COB	0	6	38	56
36	3rd Street & Highland Avenue	COB	0	10	26	56
39	Walnut St & Country Club Dr/Winslow Rd	COB	0	8	31	55
39	3rd Street & Washington Street	COB	0	10	25	55
41	Kirkwood Ave & Walnut Street	COB	0	4	42	54
42	3rd Street & Woodlawn Avenue	COB	0	8	26	53
43	8th Street & College Avenue	COB	0	7	27	51
44	14th Street & Walnut Street	COB	0	7	29	50
44	10th Street & Woodlawn Avenue	COB	0	8	26	50
46	7th Street & Walnut Street	COB	0	6	28	46
47	Kirkwood Avenue & Rogers Street	COB	0	4	31	43
48	2nd Street & Rogers Street	COB	0	4	29	41
48	10th Street & Sunrise Drive	COB	0	4	29	41
50	3rd Street & Dunn Street	COB	0	3	30	39
51	SR 46 & Smith Pike	INDOT	0	2	32	38

Crash Factors

This section summarizes the primary crash factors from 2013 to 2015. An understanding of these causes informs infrastructure investments, enforcement activities, and educational efforts. Traffic law enforcement and road design can address unsafe speeds, while guardrail, rumble strips, or safety education can mitigate the tendency of motorists to drive off the road. Similarly, enforcement and education could reduce the number of crashes attributable to alcohol potentially leading to a decrease of weekend/late night hit and run crashes.

Table 6 illustrates the Top 10 Primary Crash Factors for 2013-2015 which account for over three-quarters of total crashes. Failure to yield right of way was once again the most common cause of crashes, contributing to nearly 2,300 crashes from 2013 to 2015. Following too closely and unsafe backing were additional significant crash factors. While failing to yield right of way was the most frequent crash cause, running off the road to the right was more dangerous based on the percentage of crashes that resulted in fatality or incapacitating injury. Table 6a identify the Top 10 primary crash factors for 2013-2015 ranked in order of percent of incapacitating injury resulting from the crash. Of the most during the time period, which resulted in five (5) fatal crashes and the highest percentage of incapacitating injury.

The frequency of crashes ranked by primary factor provides information about which crashes happen most often. The percentage comparison reveals which primary factors for crashes have previously resulted in injury and which are less likely to result in injury. For example, unsafe backing ranked third as a primary factor in a crash, but comparing likelihood of injury, 98% of crashes from unsafe backing result in no injury.

Table 6 - Top 10 Primary Crash Factors by Severity – Calendar Years 2013-2015

Rank	Primary Factor	Severity				Total
		Fatal	Incapacitating Injury	Non-Incapacitating Injury	Prop. Damage/ Unknown	
1	Failure to Yield Right-of-Way	1	153	469	1,651	**2,274**
2	Following Too Closely	0	87	450	1,604	**2,141**
3	Unsafe Backing	0	4	22	1,439	**1,465**
4	Ran Off Road – Right	5	87	178	759	**1,029**
5	Other (Driver) – Explain in Narrative	2	23	86	732	**843**
6	Speed Too Fast (Weather)	0	20	66	467	**553**
7	Animal/Object in Roadway	0	5	29	473	**507**
8	Disregard Signal/Sign	1	37	141	315	**494**
9	Improper Turning	0	16	31	430	**477**
10	Unsafe Lane Movement	0	10	39	392	**441**

Table 6a - Top 10 Primary Crash Factors by Severity Percentages – Calendar Years 2013-2015

Rank	Primary Factor	Severity				Total
		% Fatality	% Incapacity Injury	% Non-Incapacitating Injury	% Property Damage	
1	Failure to Yield	0.04%	6.7%	21%	73%	**2,274**
2	Following too Closely	0.00%	4.1%	21%	75%	**2,141**
3	Unsafe Baking	0.00%	0.3%	2%	98%	**1,465**
4	Ran Off Road-Right	0.49%	8.5%	17%	74%	**1,029**
5	Explain in Narrative	0.24%	2.7%	10%	87%	**843**
6	Too fast for Weather Conditions	0.00%	3.6%	12%	84%	**553**
7	Animal/Object in Roadway	0.00%	1.0%	6%	93%	**507**
8	Disregard Signal/Regulatory Sign	0.20%	7.5%	29%	64%	**494**
9	Improper Turning	0.00%	3.4%	6%	90%	**477**
10	Unsafe Lane Movement	0.00%	2.3%	9%	89%	**441**

Fatalities

This section provides a focused examination of motor vehicle fatalities in Monroe County from Calendar Year 2013 to 2015. As with previous sections, the material presented here can be useful for enforcement, education, and administrative/engineering decision-making.

In 2015 there were eight (8) crash fatalities in Monroe County (**Table 7**). Of these, three resulted from crashes involving a moped or motorcycle, three resulted from crashes involving two cars, and two resulted from crashes involving one car. Over the period from 2013 to 2015, the average annual number of fatalities per 100,000 residents was 4.9 for Monroe County. This figure is well below the U.S. average of 10.92 fatalities per 100,000 people for 2015. While the average number of fatalities in Monroe County is lower than the national average, the national average might not represent the best comparison. The U.S. fares much worse than many other developed nations in terms of traffic safety. The United Kingdom and Sweden average 2.9 and 2.8 traffic deaths per 100,000 people, respectively.

An investigation of the causal factors leading to fatal crashes shows that veering left of the centerline and running off the road to the right are the most common cause of crashes leading to a fatality (**Table 8**).

Table 7 - Fatalities by Crash Type – Calendar Years 2013-2015

Year	Crash Type						Total	Fatalities per 100,000 Population
	One Car	Two Cars	Three Cars or More	Moped or Motorcycle	Bicycle	Pedestrian		
2013	0	1	2	1	0	0	**4**	**2.8**
2014	4	3	0	0	0	2	**9**	**6.3**
2015	2	3	0	3	0	0	**8**	**5.5**
Total	**6**	**7**	**2**	**4**	**0**	**2**	**21**	**4.9**

Table 8 - Fatal Crash Primary Factors – Calendar Years 2013-2015

Rank	Primary Factor	Fatal Injury	% of Total
1	Left Of Center	6	30%
2	Ran Off Road Right	5	25%
3	Unsafe Speed	2	10%
4	Other (Driver) - Explain In Narrative	2	10%
5	Pedestrian Action	2	10%
6	Failure To Yield Right Of Way	1	5%
7	Disregard Signal/Regulatory Signage	1	5%
8	Obstruction Not Marked	1	5%
	Total	**20**	**100%**

Fatal Crash Locations

This section summarizes the locations for crashes with identified fatalities. A total of twenty (20) recorded fatal crash locations resulted in a total of twenty-one (21) fatalities during the Calendar 2013-2015 study period. Table 8 identifies the locations of Calendar Year 2013-2015 fatal crashes. Location information will aid transportation planners and engineers to identify problematic locations (**Table 9**). Fatalities are a major factor in determining HSIP funding eligibility.

Table 9 - Fatal Crash Locations by Type – Calendar Years 2013-2015

Location	Juris-diction	Total Deaths	Number of Crashes				
			One Car	Two Cars	Three or More Cars	Moped or Motorcycle	Pedestrian
Fairfax Rd and Schacht Rd	MC	1	0	0	0	1	0
Leonard Springs Rd and Duncan Rd	MC	1	1	0	0	0	0
Moon Rd, from Sand College Rd to County Line	MC	2	1	0	0	0	0
Old SR 46, from SR 46 to N Brummetts Creek Rd	IN	1	0	1	0	0	0
SR 37 and SR 45	IN	1	0	0	0	1	0
SR 37 and Ingram Rd	IN	1	1	0	0	0	0
SR 37 and Victor Pike	IN	1	0	0	0	1	0
SR 446 and Pine Grove Rd	IN	1	0	1	0	0	0
SR 45	IN	1	0	1	0	0	0
SR 45 and Gillham Rd	IN	1	0	1	0	0	0
SR 45 from S Breeden Rd to Burch/Stanford Rd	IN	1	0	0	1	0	0
SR 45/46 and Kinser Pike	IN	1	0	0	1	0	0
SR 46 and N 5th St	IN	1	0	0	0	0	1
SR 45/46 and Arlington Rd	IN	1	1	0	0	0	0
SR 46 and W Flatwoods Rd	IN	1	0	1	0	0	0
SR 46 from Flatwoods Rd to Chafin Chapel Rd	IN	1	0	1	0	0	0
SR 48 and Kirby Rd	IN	1	0	1	0	0	0
SR 48 from Vernal Pike to SR 43	IN	1	0	0	0	1	0
Beasley Dr and Curry Pike	MC	1	0	0	0	0	1
Howard Rd and Starnes Rd	MC	1	1	0	0	0	0
Total		**20**	**5**	**7**	**2**	**4**	**2**

Bicycle and Pedestrian Crashes

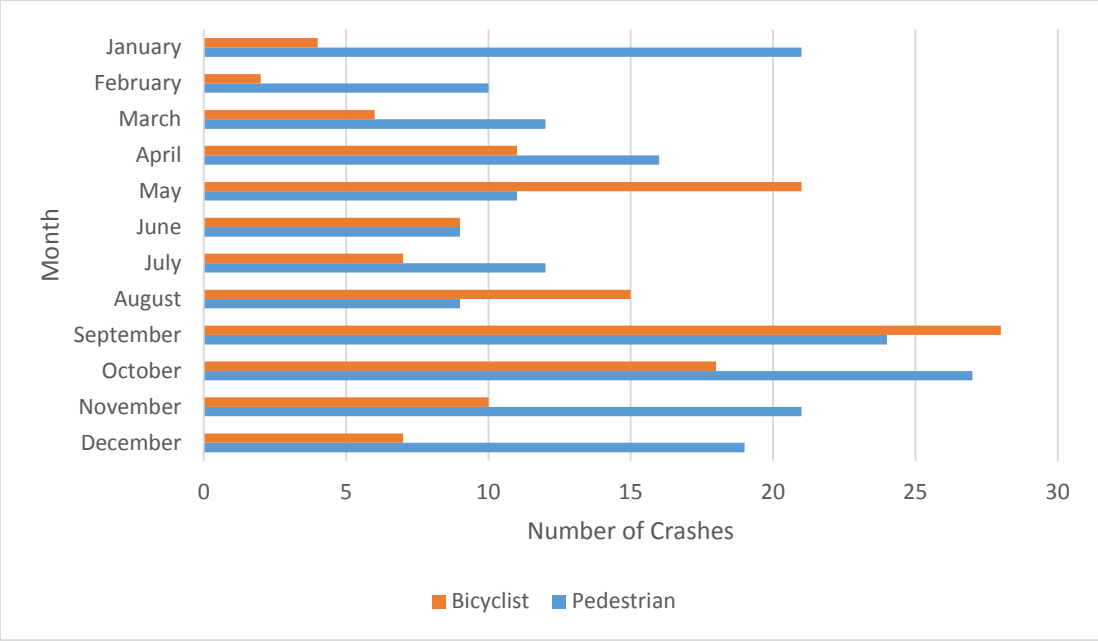
This section documents bicycle and pedestrian crashes in Monroe County from 2013 to 2015 (**Table 10**). Bicycle and pedestrian crashes within the City of Bloomington and Monroe County represent a planning priority given a high number of non-motorized trips within the urbanized area. Data from the 2013 American Community Survey indicates that 5.1% of commuters in Bloomington use a bicycle as their primary mode of transportation, while 14.7% walk for multiple trip purposes. The combined walking and biking commute rate ranks 7th among U.S. cities with a population of greater than 65,000 people. However, as described in this report, individuals using these modes of transportation are particularly vulnerable to injury.

Crashes involving cyclists and pedestrians more often result in injury when compared with motor vehicle crashes. Therefore there is a priority need to reduce the frequency and severity of these crashes. Figure 6 shows that the frequency of pedestrian and bicycle crashes varies by mode. Pedestrian crashes had peaks in January and October whereas crashes involving a bicyclist had peaks in May and September. Local agencies should therefore use this knowledge to emphasize enforcement and education strategies during these predictable seasonal peak months.

Table 10 - Top Bicycle and Pedestrian Crash Locations – Calendar Years 2013-2015

Rank	Intersection	Jurisdiction	Crash type		Total Ped + Bike
			Pedestrian	Bicycle	
1	7th Street & Jordan Avenue	COB	3	5	8
2	2nd Street & Walnut Street	COB	2	3	5
2	3rd Street & Jordan Avenue	COB	3	2	5
2	Dunn Street & Kirkwood Avenue	COB	4	1	5
3	3rd Street & Woodlawn Avenue	COB	3	1	4
3	SR 46 (3rd St) & N Clarizz Blvd	IN	2	2	4
3	Kirkwood Avenue & College Avenue	COB	4	0	4
3	Kirkwood Avenue & Walnut Street	COB	2	2	4
3	6th Street & Morton Street	COB	2	2	4
3	7th Street & Walnut Street	COB	3	1	4
3	17th Street & Indiana Avenue	COB	2	2	4

Figure 6 - Bicycle and Pedestrian Crashes by Month – Calendar Years 2013-2015



Conclusion

This C.Y. 2013-2015 Crash Report highlights a number of meaningful trends relating to motor vehicle, bicycle and pedestrian crashes in Monroe County. The information contained within this Crash Report represents an informational guide for transportation/traffic engineering decision-making ultimately leading to a safer and healthier transportation system for Monroe County and the Bloomington-Monroe County Metropolitan Planning Organization.

Several problem areas noted in this and past BMCMPO Crash Reports were improved upon or are in the process of being addressed, such as at many locations along the SR 37/I-69 construction corridor. Improvements at the intersection of Atwater Avenue and Henderson Street completed in 2011 resulted in a 54% reduction in crash frequency at that location, compared to the period from 2008 to 2010. Evaluation of past and future crash data at these and other locations will further aid in implementing appropriate and effective mitigation strategies to reduce and avoid future crashes.

This Crash Report identifies locations that may require further study to see if safety issues warrant capital improvement investments. Intersections along SR 37, SR 45, and SR 45/46 Bypass corridors continue with problematic issues given traffic volumes and correlated crash frequency. State and local transportation officials, engineers, and staff are coordinating information thereby targeted locations with warranted safety improvements due to jurisdictional boundaries at these locations.

Data and analysis and other attributes included within the report (e.g. bus, moped, motorcycle, fatalities, causes, locations, severity of crashes), provide additional information for identifying trends and/or areas of concern. Information regarding seasonal spikes in bicycle and pedestrian crashes can serve as a foundation for education and enforcement strategies. Future versions of this Crash Report may consider a more detailed analysis of hit and run locations and alcohol-related factors. An improved understanding of these factors would help the community to better focus its efforts on reducing serious traffic injuries and their subsequent impact on the BMCMPO planning area.

Future reports should consider comparing local jurisdiction intersections and/or roadway corridors with similar operating characteristics in order to help identify locations which have a higher than expected crash total, crash rate, or severity index. Additionally, a method to calculate a crash rate for every intersection in the network warrants exploration. These additional levels of analyses will further aid transportation planners, engineers, and officials in effectively identifying hazardous locations and securing funding for operational modifications.

This Crash Report represents an initial step toward improving safety on local BMCMPO area roadways by identifying problematic locations. Transportation planners, engineers, and local officials together will use this information to determine locations that need attention, and seek funding for necessary operational improvements, physical modifications or other means (enforcement, education) warranted to improve overall BMCMPO transportation system safety.

To: BMCMPO Technical Advisory Committee & Citizens Advisory Committee

From: Patrick Martin, BMCMPO Staff

Date: November 21, 2018

Re: FY 2018 – 2021 Transportation Improvement Amendments: Rural Transit Projects

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The Indiana Department of Transportation, Office of Transit, is requesting amendments to FY 2018 of the BMCMPO FY 2018-2021 TIP.

As noted in the attached correspondence from Larry Buckle, the amendment request involves

- Replacement of the DES numbers for funded Rural Transit Projects with the DES numbers on the attached project sheet, and

- An amendment into the FY 2018-2021 TIP of three (3) Rural Transit projects identified on the attached project sheet.

Please see the attached documents for project details and funding amounts.

REQUESTED ACTION

Recommend Policy Committee adoption of the listed Rural Transit project amendments.

BLOOMINGTON

Patrick Martin <martipa@bloomington.in.gov>

Rural Transit Projects in TIP

2 messages

Buckel, Larry <LBUCKEL@indot.in.gov> Mon, Oct 15, 2018 at 11:37 AM
To: "Patrick Martin (martipa@bloomington.in.gov)" <martipa@bloomington.in.gov>

Hi Pat,

I have attached a list of Monroe County Rural Transit Projects that are funded with INDOT's Section 5311 and Section 5339 funds.

You currently have the Section 5311 operating funds in your TIP but I am **asking** you to replace the DES numbers with the DES numbers on my sheet.

I have also included 3 Monroe County Rural Transit Projects that need to be **amended** into you TIP which are included on my sheet (TIP amendment).

Please send me your amendment when completed and I will amend into the STIP.

Let me know if any questions.

Thanks

Larry Buckel
Office of Transit, Manager

100 North Senate Avenue, Room N955

Indianapolis, Indiana 46204

Office: (317) 232-5292

Cell: (317) 728-6250

Email: lbuckel@indot.in.gov

Bloomington STIP Transit Projects FY 2018 - 2021 - Rural Projects.xls
31K

Bloomington-Monroe County Metropolitan Planning Organization (BMCMPO) FY 2018-2021
FY 2018-2021 Transportation Improvement Program Amendments

Date: 11-28-2018

Number	DES	MPO	Sponsor Name	Project Description	Fiscal Year	Total	Federal	Local	Federal Funding Source	FTA Grant Numaber	MPO TIP YEAR	STIP Approval Date	Comments
1	1801834	Bloomington	INDOT	Operating Assistance for Rural Transit	2018	$1,418,116	$698,949	$719,167	5311	IN-2017-016	2018		Adding Rural (Section 5311) Project to the TIP
2	1801902	Bloomington	INDOT	Operating Assistance for Rural Transit	2019	$1,493,115	$719,024	$774,091	5311	IN-2018-022	2018		Adding Rural (Section 5311) Project to the TIP
3	1802041	Bloomington	INDOT	Operating Assistance for Rural Transit	2020	$1,418,116	$698,949	$719,167	5311		2018		Adding Rural (Section 5311) Project to the TIP
4	1802042	Bloomington	INDOT	Operating Assistance for Rural Transit	2021	$1,418,116	$698,949	$719,167	5311		2018		Adding Rural (Section 5311) Project to the TIP
5	1801850	Bloomington	INDOT	Surveillance Equipment for Rural Transit	2018	$13,661	$10,929	$2,732	5311	IN-2017-016	2018		Adding Rural (Section 5311) Project to the TIP
6	1801864	Bloomington	INDOT	Two Replacement Large Transit Vehicles for Rural Transit	2018	$110,323	$88,258	$22,065	5339	IN-2017-016	2018		Adding Rural (Section 5339) Project to the TIP
7	1801900	Bloomington	INDOT	Two Replacement Large Transit Vehicles for Rural Transit	2019	$110,200	$88,160	$22,040	5339	IN-2018-022	2018		Adding Rural (Section 5339) Project to the TIP

Source: INDOT, Office of Transit, October 2018.

BLOOMINGTON • MONROE COUNTY
mpo

November 20, 2018

Call for Projects
Fiscal Years 2020-2024 Transportation Improvement Program

The Bloomington Monroe County MPO is pleased to announce the Call for Projects for the Fiscal Years 2020 through 2024 Transportation Improvement Program (TIP). Funding from the Surface Transportation Program (STP), Highway Safety Improvement Program (HSIP), and Transportation Alternatives Program (TAP), will be awarded for all five (5) years of the TIP. Applications for funding from these programs must be submitted to the BMCMPO by **5:00 PM on Friday, December 14, 2018**. Please contact BMCMPO staff if you have any questions about this Call for Projects. Please submit applications electronically to martipa@bloomington.in.gov.

The FY 2020-2024 TIP will be developed according to the schedule below:

Call for Projects Issued:	November 20, 2018
Application Deadline:	December 14, 2018
Policy Committee Project Score Sheet Review	January 11, 2019
TAC/CAC Project Score Sheet Review & Draft TIP	January 23, 2019
Policy Committee Approval of Draft TIP Submission	February 8, 2019
Draft TIP Submission Deadline to INDOT	February 15, 2019
Draft TIP Public Input Meeting (week of)	March 11, 2019
PC Approval of new TIP:	April 12, 2019
Submission of TIP to INDOT:	April 30, 2019

Funding

The chart below details the funding available for the FY 2020 - 2024 TIP. Please note the following restrictions on the programming of funds:

- **No Rollover:** The annual allocation of funds for each fiscal year must be spent within that specific fiscal year and may not roll forward to a future fiscal year. Any funds not spent from the fiscal year allocation will be lost. It is therefore very important to be as accurate and realistic as possible about project costs and schedules.

- **Prior Year Balance (PYB):** PYB represents all unspent Federal funds assigned to the MPO through Fiscal Year 2014. These funds are applicable to only FY 2020.

- **Fiscal Years 2020 - 2021:** These two fiscal years are currently programmed in the adopted FY 2018-2021 TIP. This document is available on the BMCMPO website for reference at https://bloomington.in.gov/mpo/transportation-improvement-program. This Call for Projects is an opportunity to make adjustments to those years if needed.

Bloomington-Monroe Couty Metropolitan Planning Organization (BMCMPO)
FY 2020 – 2024 TIP Program Levels

Program	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
STPB	$ 2,750,133	$ 2,750,133	$ 2,750,133	$ 2,750,133	$ 2,750,133
HSIP	$ 470,684	$ 470,684	$ 470,684	$ 470,684	$ 470,684
TAP	$ 155,801	$ 155,801	$ 155,801	$ 155,801	$ 155,801

Additional Guidance

The following information is provided as guidance for the preparation of FY 2020 – 2024 TIP project applications.

- **Letting Date:** ***All projects must have an assigned a Letting Date for inclusion in the TIP***. This allows INDOT to build a project schedule when the project is added to their management database. FHWA also tracks the percentage of projects that go to letting at their original proposed letting date as a measure of MPO performance. No project should have an assigned contract letting date later than March of any fiscal year. LPAs should select letting dates earlier than March if at all possible thereby ensuring enough post-letting time for INDOT to award bids, process financial approvals, and issue purchase orders for project funds before fiscal year closure.

- **DES #:** ***All projects must be assigned a DES # in order to be included in the TIP***. INDOT has a special form for requesting a DES #. If an LPA wishes to include a new project in the TIP, please contact MPO staff for a copy of the DES # application. Staff can assist in filling the form and will then submit it to INDOT on behalf of the LPA. INDOT will not amend any project into the State TIP (STIP) without an assigned DES #. Moreover, any projects that propose to use HSIP and TAP funding must have their eligibility for such funds approved by INDOT before a project DES # issuance.

- **Construction Engineering:** The TIP Project Request Form now lists Construction Engineering (CE) as a separate phase from Construction (CN). This will make funding administration easier for the MPO and INDOT as projects move through the process. Please prepare your project financial plans accordingly.

- **HSIP Project Priorities:** FHWA and INDOT require MPOs to prioritize low-cost, systemic HSIP projects for funding. LPAs should seek to implement these types of projects rather than spot/intersection improvements with MPO HSIP funds. There are currently twenty-five (25) project types listed by INDOT as eligible for HSIP funds under the low-cost, systemic categories. Existing spot/intersection improvement projects in the TIP may proceed forward, but future HSIP applications should focus on low-cost, systemic opportunities.

- **Public Meeting:** The MPO anticipates hosting a public meeting to gather input on the proposed FY 2020-2024 TIP. This meeting shall take place in March 2019. The MPO expects that LPA staff would

be on hand at the meeting to discuss their proposed projects. MPO staff will coordinate with the LPAs to determine the best date, time, and venue for this meeting.

Application Requirements

LPAs must submit the following (as applicable) for projects to be considered for funding in the new TIP. All applications must be signed and dated.

- **TIP Project Request Form:** This form must be submitted for all projects regardless of funding source. This includes any project that is in the current TIP and that needs to be carried forward to the new TIP. This is an opportunity to update schedule and funding information for existing projects as well as to make sure they comply with the Construction Engineering (CE) phase requirements as noted above.

- **TAP Application:** Any project requesting TAP funds must submit a TAP Application in addition to the TIP Project Request Form. Please see the BMCMPO TAP Guidelines for more information about supporting documentation that must accompany the TAP Application.

- **HSIP Low Cost/Systemic Project Application (INDOT):** Any project requesting HSIP funds for a low cost/systemic project must submit and INDOT HSIP Low Cost/Systemic Project Application in addition to the TIP Project Request Form. Eligible HSIP Systemic Projects include the following:

    - Conduct inventory of traffic signs and upgrade warning and regulatory signs to meet MUTCD retroreflectivity requirements
    - Improve the visibility of curves by upgrading curve warning signs and markings
    - Install vehicle activated advanced warning systems at rural, unsignalized intersections
    - Install new pedestrian crosswalk warning signs, flashing beacons or special pavement markings
    - Install or upgrade pedestrian curb ramps and refuge areas at areas of high conflict between pedestrians and vehicular traffic
    - Install pedestrian push button Countdown And Audible (APS) heads on traffic signals
    - Make changes to yellow interval traffic signal timing or signal interconnect to improve safety
    - Upgrade traffic signals to a minimum of one signal head per travel lane
    - Install black backing plates with reflective border on all traffic signal heads
    - Install UPS battery backup (emergency power) systems at traffic signal locations for continuous use during power outages
    - Install emergency vehicle pre-emption systems at traffic signal locations to reduce response times and increase safety as the emergency vehicles pass through intersections
    - Improve sight distance at intersections by installing slotted left turn lanes
    - Install or upgrade passive or new active warning devices at railroad crossings
    - Install railroad pre-emption systems at signalized intersections that are within the influence area of crossing railroad trains
    - Install new centerline or edge line pavement markings on unmarked roadways
    - Install raised medians for access control at intersections and roadway segments
    - Add centerline and/or edge line rumble stripes (pavement markings over the rumble) to rural roads

- Complete road diet projects at locations that can be accomplished through the use of signs and pavement markings (Not Applicable to pavement reconstruction or geometric modifications)
- Add FHWA recommended High Friction Surface Treatments (HFST) to spot locations
- Upgrade guardrail end treatments to current standards
- Install guardrails or median barriers at locations where none existed previously
- Install median cable barrier systems on divided roads with grass medians
- Remove or shield permanent roadside safety obstructions

- **HSIP Intersection Improvement:** Please see the HSIP Guidelines for more information about the supporting documentation required in addition to the TIP Project Request Form.

Last Revised: November 20, 2018

Bloomington/Monroe County MPO
FY 2020 - 2024 TIP Development Schedule

11/20/18 - Open BMCMPO Call for Projects for all sources (STP/TAP/HSIP) from FY 2020 through FY 2024 (no separate TAP/HSIP committee).

12/14/18 - Close BMCMPO Call for Projects at 5:00 p.m.

12/28/19 - Complete scoring for projects.

01/11/19 - Report at BMCMPO PC meeting project score sheets and ask for preliminary recommendations/input. Do projects match up with BMCMPO 2040 MTP goals?

01/23/19 - Report at TAC/CAC meeting project score sheets and ask for preliminary recommendations/input. Do projects match up with BMCMPO 2040 MTP goals?

02/08/19 - Draft FY 2020-2024 TIP to BMCMPO Policy Committee for review prior to INDOT submission.

02/15/19 - Draft FY 2020-2024 TIP document submission deadline to INDOT.

02/21/19 - Public comment period notice to Bloomington *Herald Times* for 02/24/19 insertion.

02/24/19 - Public comment period opens; notify BMCMPO list serve.

02/25/19 - Schedule public meeting (location, date, time, and content) for week of 03/11/19.

02/27/19 - Draft document to TAC/CAC for more input (goes in to packet on 02/20/19).

03/04/19 - Public meeting notice published in Bloomington *Herald Times*.

03/04/19 - Press release for public meeting.

03/04/19 - Remind BMCMPO list serve of open public comment period and public meeting.

03/08/19 - Draft FY 2020-2024 TIP document to BMCMPO Policy Committee for additional input.

03/11/19 - (*week of*) hold public meeting.

03/26/19 - Public comment period closes.

03/27/19 - Final Draft FY 2020-2024 TIP to TAC/CAC for discussion and recommendation vote.

04/12/19 - Final Draft FY2020-2024 TIP to BMCMPO Policy Committee for discussion and adoption vote.

05/22/19 - Final Draft with BMCMPO Policy Committee Adoption Resolution to INDOT

Source: BMCMPO Staff – November 19, 2018.

Questions? Contact martipa@bloomington.in/gov

FY 2020-2024 Transportation Improvement Program
Project Request Form

(Please return form fully completed by December 14, 2018)

Mail: Bloomington/Monroe County MPO
401 N. Morton Street, Suite 130
Bloomington, Indiana 47402
Email: martipa@bloomington.in.gov
Fax: (812) 349-3530

Section 1: Local Public Agency Information

- ☐ City of Bloomington
- ☐ Monroe County
- ☐ Town of Ellettsville
- ☐ Indiana University
- ☐ Bloomington Transit
- ☐ Rural Transit
- ☐ INDOT
- ☐ _____

Employee in Responsible Charge (ERC): _____
Phone: _____
Email: _____

Section 2: Verification

I hereby certify that the information submitted as part of this form is complete and accurate. Furthermore, if applicable, I certify that the project complies with the BMCMPO Complete Streets Policy.

_____

Employee in Responsible Charge (ERC) Date

Section 3: Project Information

A. Project Name:

B. Is project already in the TIP?
☐ Yes ☐ No

C. DES # (if assigned):

D. Project Location (detailed description of project termini):

E. Please identify the primary project type (select only one):

- ☐ Bicycle & Pedestrian
- ☐ Bridge
- ☐ Road – Intersection
- ☐ Road – New/Expanded Roadway
- ☐ Road – Operations & Maintenance
- ☐ Road – Reconstruction/Rehabilitation/Resurfacing
- ☐ Sign
- ☐ Signal
- ☐ Transit

F. Project Support (local plans, LRTP, TDP, etc.):

G. Allied Projects:

H. Does the Project have an Intelligent Transportation Systems (ITS) component?

☐ Yes ☐ No

If yes, is the project included in the MPO's ITS Architecture?

☐ Yes ☐ No

I. Anticipated Letting Date: _____

Section 4: Financial Plan

Identify all anticipated costs for all phases of the project, including any costs anticipated in years beyond the scope of this TIP. All phases must incorporate a four percent (4%) per year inflation factor per BMCMPO policy. All CN phases must include an appropriate amount of funding for construction inspection in addition to project construction costs.

Note: Fiscal Year 2020 begins on July 1, 2019 and ends on June 30, 2020.

Phase	Funding Source	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	*Outlying Years*
PE		$	$	$	$	$	*$*
		$	$	$	$	$	*$*
		$	$	$	$	$	*$*
RW		$	$	$	$	$	*$*
		$	$	$	$	$	*$*
		$	$	$	$	$	*$*
CE		$	$	$	$	$	*$*
		$	$	$	$	$	*$*
		$	$	$	$	$	*$*
CN		$	$	$	$	$	*$*
		$	$	$	$	$	*$*
		$	$	$	$	$	*$*
	Totals:	$	$	$	$	$	*$*

Section 5: Complete Streets Policy

A. Select one of the following:

☐ **Compliant -** This project is subject to the Complete Streets Policy because it involves the new construction or reconstruction of local roadways that will use federal funds through the BMCMPO for any phase of project implementation. *Additional Information items **1-8** (below) must be submitted for Compliant projects*.

☐ **Not Applicable -** This project is not subject to the Complete Streets Policy because it is a transit project, a non-roadway project, a resurfacing activity that does not alter the current/existing geometric designs of the roadway, or is a project that uses federal funds for which the BMCMPO does NOT have programming authority. *No Additional Information items (below) have to be provided for projects to which the Complete Streets Policy does not apply.*

☐ **Exempt –** The LPA is requesting that this project be exempted from the Complete Streets Policy due to certain circumstances or special constraints, as detailed in Section IV of the Complete Streets Policy. Please provide a detailed explanation of why the project should be exempted. *Additional Information items **1, 4-8** (below) must be submitted for Exempt projects*.

Justification for Exemption: _____

B. Additional Information:

Attach to this application form the following information as required by the Complete Streets Policy. If any items are unknown at the time of application, the applicant may indicate that "specific information has not yet been determined." Any required information not provided at the time of this application must be reported to the MPO as soon as it becomes available.

1) Detailed Scope of Work – Provide relevant details about the project that would be sufficient to use when seeking consulting services (detailed project description, vehicular elements, non-vehicular elements, new construction/reconstruction).

2) Performance Standards – List specific performance standards for multimodal transportation, including, but not limited to transit, pedestrian, bicycle, and automobile users, ADA and Universal Design, environmental, utilities, land use, right of way, historic preservation, maintenance of services plan, and any other pertinent design component in relation to current conditions, during implementation/construction, and upon project completion.

3) Measurable Outcomes – Identify measurable outcomes the project is seeking to attain (e.g. safety, congestion and/or access management, level-of-service, capacity expansion, utility services, etc.).

4) Project Timeline – Identify anticipated timelines for consultant selection, public participation, design, right-of-way acquisition, construction period, and completion date.

5) Key Milestones – identify key milestones (approvals, permits, agreements, design status, etc.).

6) Project Cost – Identify any anticipated cost limitations, additional funding sources, project timing, and other important cost considerations not included in the table above.

7) Public Participation Process – Describe the public participation process (types of outreach, number and type of meetings, etc.), and the benchmark goals for the project (participation rates, levels of outreach, levels of accountability and corresponding response methods to input received, etc.).

8) Stakeholder List – Identify the key parties/agencies/stakeholders/interest groups anticipated to be engaged during project development and their respective purpose for being on the list.

INDOT - Project Programming / New Des Number Request Form

Revised 10/18/18

INDOT use only.
New Assigned Des #:

Local Public Agency:

District: | Sub District: | Congressional District

LPA ERC: | ERC Phone #:

ERC Certification Date: | ERC E-mail:

Project Description:

Notes / Other Project or Funding Information:

ADT Year: | Current ADT: | Number of Lanes:

Contract Prefix:

Planning Area / MPO:

Work Category:

Work Type:

Functional Class:

Program Class:

Group Category:

Transportation System:

Sponsor:

FMIS Urban Area:

FMIS Area:

Project Location:

Project Coordinates:

Start Latitude		Start Longitude	
Mid Latitude		Mid Longitude	
End Latitude		End Longitude	

Project Length:

Bridge Projects

Structure Number: | NBI Number:

Sufficiency Rating: | as of Date:

Feature crossed by Bridge: | Approach Length in Feet:

Railroad Projects

DOT Number: | RR Name:

Local Public Agency: 0

Funding Information

Phase	FY	Funding Program	Local Funds	Federal Funds	Total for Phase
					$0.00
					$0.00
					$0.00
					$0.00
					$0.00
					$0.00
					$0.00
					$0.00
					$0.00
					$0.00
Total Project Cost			$0.00	$0.00	**$0.00**

Award Amount:

Initial Letting Date:

RFC Date: #N/A

Federal Split:

Special Funds Category

What is the purpose and need of your project? Explain below.

Is this new DES Number Request a Sub-Project to any other project? If yes complete below.

Contract Number:

DES Number(s):

Project Manager

Pjt Mgr Phone #

REMINDER - Submit this form with the following attachments:

- ✓ **Supporting Documentation, such as:**
  - **Minutes from a Policy Meeting**
  - **Call for MPO Project Application**
  - **Signed Award Letter**
- ✓ **Proof of Project Funding Eligibility Approval (as required)**

TRANSPORTATION ALTERNATIVES PROGRAM GUIDELINES

Last Revised: 10/11/13

INTRODUCTION

Moving Ahead for Progress in the 21st Century (MAP-21), the transportation bill that went into effect in 2012, authorized a new funding program called the Transportation Alternatives Program (TAP). In broad terms, TAP is a consolidation of three previously existing federal programs which were not independently authorized in MAP-21: Transportation Enhancements (TE), Safe Routes to School (SRTS), and the Recreational Trails Program (RTP). This packet contains general information about the process used to award TAP grants to eligible projects within the Bloomington/Monroe County Metropolitan Planning Organization (BMCMPO).

The Bloomington/Monroe County Metropolitan Planning Organization (BMCMPO) is responsible for reviewing and awarding eligible Transportation Alternatives Program (TAP) grant applications that fall within the BMCMPO Urbanized Area. MAP-21 does not establish minimum standards or procedures for competitive TAP processes. MPOs are given discretion to establish project priorities and to decide whether to fund (or not fund) eligible project categories.

The Indiana Department of Transportation (INDOT) will provide technical assistance and review to ensure that any submitted TAP application meets federal eligibility requirements. INDOT will also administer TAP funds and all subsequent project management aspects (e.g. engineering design reviews, contract bids, contract awards, etc.) once the BMCMPO has awarded TAP funds to a Local Public Agency (LPA) project.

ELIGIBLE ACTIVITIES

Eligible activities to be considered for TAP awards in the BMCMPO are described as follows:

- Sidewalks
- On-street or off-street bicycle infrastructure
- Pedestrian and bicycle signals
- Maintenance or construction of recreational trail or trailhead facilities
- Traffic calming techniques
- Lighting and other infrastructure that improves bicycle and pedestrian safety
- Infrastructure projects that will provide safe routes for non-drivers, including children, older adults, and individuals with disabilities to access daily needs
- Safe Routes to School programming (Education, Encouragement, Enforcement, Evaluation)

LIMITATIONS

TAP grant awards are based upon a grant formula where no more than 80% of the eligible costs will be reimbursed; which in turn requires a minimum of a 20% local match to be paid by the applicant. The BMCMPO will get estimated amounts to award annually for the local TAP program. The BMCMPO will have the ability to rollover or bank any previous TAP funds allocated to the local TAP program that were not awarded. These funds can be used any subsequent year or TAP grant award cycle in addition to the annual allocation. For the most current estimate available for the local TAP Program, contact the BMCMPO staff. The following are guidelines and limitations to the TAP Program:

- No limitation on the number of applications an LPA can submit for consideration;
- New projects, components of existing projects, and multiple phased projects are eligible;
- Application requests cannot exceed the estimated amount of TAP funds available, and are capped at $1,000,000 under any scenario.

SELECTION COMMITTEE

A TAP Selection Committee will review and score all applications received during the TAP call for projects and will provide their recommendation to the BMCMPO committees. At a minimum, the TAP Selection Committee shall be comprised of at least one, but not more than two, member(s) from each of the BMCMPO committees: the Policy Committee (PC), the Technical Advisory Committee (TAC), and the Citizens Advisory Committee (CAC). Members that are chosen to serve on the TAP Selection Committee may do so provided the following conditions are met:

- The member is in good standing with the BMCMPO;
- The member is nominated by their respective BMCMPO committee to serve on the TAP Selection Committee; and
- The member understands that, in a good faith pledge, their role is to serve in the best interest of the BMCMPO and not to any subordinate agency, group, or association where a perceived or real advantage may come to being through their association by serving this committee.

In addition to the BMCMPO members serving on the TAP Selection Committee, up to three at-large members may also be selected to serve on the TAP Selection Committee if the MPO staff finds that the composition of the committee could benefit from additional expertise outside of the BMCMPO committee membership. These at-large members may be asked to serve by the MPO staff provided the following conditions are met:

- The individual resides within the BMCMPO Urbanized Area, with the exception of representatives of the Indiana Department of Transportation, Indiana Department of Environmental Management, and other pertinent state agencies; and
- At least one of the at large members is directly associated with one of the following: Bloomington and Monroe County Visitors Bureau, Downtown Bloomington Inc., Bloomington Bicycle Club; Indiana Department of Natural Resource; Council of Neighborhood Associations, a local bicycle or pedestrian advocacy or safety group, a local historic preservation group (HPC, Monroe County Historical Society), a licensed engineer, architect, landscape architect, or planner, Indiana Department of Environmental Management, or Indiana Department of Transportation.

PROJECT SELECTION CRITERIA, REVIEW, AND AWARD PROCESS

The TAP Selection Committee shall review all applications and score them on a 100 point system as prescribed in these guidelines. This scoring system evaluates the level of community support, overall utility, safety, and project readiness, based on the criteria below. Note that the points listed for each question are the maximum possible, and that a range of 0 to the maximum could be awarded by the committee members evaluating TAP applications.

CRITERIA	MAXIMUM POINTS
Community Support	**20 points**
Is the project supported by local planning documents?	10
Has the project received letters of support from community organizations?	5
Has the project been presented at public meetings?	5
Safety	**25 points**
Does the project location occur on any of the lists in the MPO's crash reports from the previous 3 years?	10
How many total crashes occurred within ¼ mile of the proposed project in the previous 3 years?	5
How many fatal or incapacitating injury crashes occurred within ¼ mile of the proposed project in the previous 3 years?	5
Does the proposed project improve safety for multiple user groups?	5
Utility	**25 points**
Does the project connect to destinations such as parks, schools, libraries, retail centers, employment centers?	10
Does the project enhance bicycle and pedestrian access for traditionally underserved populations, as identified in the MPO's Long Range Transportation Plan?	5
How many transit routes and transit stops are located within the proposed project, or are located within ¼ mile of the proposed project?	5
Does the project connect to existing bicycling and walking networks?	5
Project Readiness	**30 points**
What percentage of design work is currently completed for the project?	10
What percentage of the project right-of-way is owned by the project sponsor at the time of this application?	10
Is this project eligible for a categorical exclusion from NEPA reviews?	5
With the funds requested, will the project be fully funded, or a phase of the project fully funded?	5
TOTAL:	**100 points**

Each application shall be scored as described above by each TAP Selection Committee member. Once the applications have been scored by each member, the average of their respective scores will determine the rank order of the applications. The TAP Selection Committee members will make funding recommendations based

upon the estimated amount of available TAP funds, the project rank scores, and the funding requests for each application/project.

The results of the TAP Selection Committee review process will be a recommendation for which application(s) to award and how much TAP funding the application(s) should receive. Their recommendations will be sent to the CAC and TAC for consideration and subsequent recommendation. The PC will consider all of these recommendations and make the final award determination.

APPLICATION

All TAP project applications must be submitted by a Local Public Agency (a unit of government with authority to levy taxes) and by the deadline established by the call for projects. Generally, the following conditions apply:

- Limit each application's scope to one single project;
- A complete BMCMPO TAP application form must be submitted;
- Limit each application to a total of 35 pages in length;
- Include additional information pages, maps, pictures, letters of commitment/public support etc.;
- Include a detailed project budget for your total project with itemized cost estimates;
- Indicate whether some of the project could be completed if only part of the requested funds are awarded;
- Include a cover letter signed by the highest local elected official as well as the highest financial official of the LPA;
- Provide an electronic copy of the application to the BMCMPO; and
- Re-submissions for future cycles will be accepted; however, the application must be updated and meet any new guidance or requirements.

PROGRAM EVALUATION

The TAP program requirements will be reviewed by BMCMPO staff and Committees after each funding cycle.

FY 2020-2024 Transportation Alternatives Program Application

Please complete all pertinent fields and return an electronic copy to MPO staff at martipa@bloomington.in.gov.

Detailed Project Description (not to exceed 250 words)

Identify the project scope, overview, objective, and any other relevant project details.

Primary Purpose (Select one)

Please select which description best fits your project. All eligible project types are considered equally during evaluation.

- ☐ Construction of Bike/Pedestrian Facilities
- ☐ Safe Routes to School
- ☐ Multi-use trail project

Project Elements (All that apply)

- ☐ Sidewalks
- ☐ On-street or off-street bicycle infrastructure
- ☐ Pedestrian and bicycle signals
- ☐ Maintenance or construction of recreational trail or trailhead facilities
- ☐ Traffic calming techniques
- ☐ Lighting and other infrastructure that improves bicycle and pedestrian safety
- ☐ Infrastructure projects that will provide safe routes for non-drivers, including children, older adults, and individuals with disabilities to access daily needs
- ☐ Safe Routes to School programming (Education, Encouragement, Enforcement, Evaluation)

Community Support (20 points maximum)

a. Is the project supported by local planning documents? **(10 points maximum)**
Please list each planning document that supports the project and describe how it provides support.

b. Has the project received letters of support from community organizations? **(5 points maximum)**
Please include a copy of each letter.

c. Has the project been presented at public meetings? **(5 points maximum)**
Please list the name, date, and location of each meeting.

Safety (25 points maximum)

a. Does the project location occur on any of the following lists in the MPO's crash reports from the previous 3 years? **(10 points maximum)**
Please check each list on which the project location appears and indicate which year's crash report the list is in.

- ☐ 'Top Locations by Crash Total' (Year(s): _____)
- ☐ 'Top Locations by Crash Rate' (Year(s): _____)
- ☐ 'Top Locations by Crash Severity' (Year(s): _____)
- ☐ 'Eligible HSIP Locations' (Year(s): _____)
- ☐ 'Top Bicycle and Pedestrian Crash Locations' (Year(s): _____)

b. How many total crashes occurred within ¼ mile of the proposed project in the previous 3 years? **(5 points maximum)**

c. How many fatal or incapacitating injury crashes occurred within ¼ mile of the proposed project in the previous 3 years? **(5 points maximum)**

d. Does the proposed project improve safety for multiple user groups? **(5 points maximum)**
Please check all that apply.

- ☐ Pedestrians
- ☐ Bicyclists
- ☐ Motorists
- ☐ Transit users
- ☐ Disabled persons

Utility (25 points maximum)

a. Does the project connect to destinations such as parks, schools, libraries, retail centers, or employment centers? **(10 points maximum)**
Please check all that apply.

- ☐ Public Park
- ☐ School
- ☐ Library
- ☐ Employment
- ☐ Retail

b. Does the proposed project connect to existing bicycling and walking networks? **(5 points maximum)** *Please check all that apply.*

- ☐ Multi-use Trail
- ☐ On-street bikeway
- ☐ Sidepath
- ☐ Sidewalk
- ☐ Signed bike route

c. How many transit routes and transit stops are located within the proposed project, or are located within ¼ mile of the proposed project? **(5 points maximum)**

d. Does the project enhance bicycle and pedestrian access for traditionally underserved populations, as identified in the MPO's Long Range Transportation Plan? **(5 points maximum)**

Project Readiness (30 points maximum)

a. What percentage of design work is currently completed for the project? **(10 points maximum)**

b. What percentage of the project right-of-way is owned by the project sponsor at the time of this application? **(10 points maximum)**

c. Is this project eligible for a categorical exclusion from NEPA reviews? (**5 points maximum**)

d. With the funds requested, will the project be fully funded, or a phase of the project fully funded? **(5 points maximum)**

PLEASE ATTACH THE FOLLOWING TO THE COMPLETED TAP APPLICATION:

- **FY 2020-2024 TIP Project Request Form**
- **Cover letter signed by the highest elected local official as well as the highest financial officer of the LPA**
- **Project Map**
- **NEPA Approval Letter** (if applicable)
- **Letters of support** (if applicable)

I hereby certify that the information submitted as part of this application is accurate.

_____ _____

Signature Date

HIGHWAY SAFETY IMPROVEMENT PROGRAM GUIDELINES

Last Revised: 12/20/13

Overview

The Bloomington/Monroe County Metropolitan Planning Organization (BMCMPO) is responsible for administering the local Highway Safety Improvement Program (HSIP) process within the urbanized area, including establishing project selection procedures, soliciting projects from Local Public Agencies (LPAs), evaluating project applications, and awarding funding to projects. The Indiana Department of Transportation (INDOT) retains final authority regarding which projects are funded.

There are six general provisions guiding the Indiana State Highway Safety Improvement Program:[1]

1) *The candidate project shall demonstrate that it will address one of the infrastructure emphasis areas outlined in the Indiana Strategic Highway Safety Plan*:[2]
    a. Roadway Departure Crashes
    b. Intersection Crashes
    c. Large Vehicle Conflict Crashes
    d. Roadway Restriction Related Crashes
    e. Vulnerable User Crashes
    f. Human Factors Contribution to Crashes
2) *The candidate project must demonstrate a workable plan to address the identified safety problem*.
3) *The candidate project must demonstrate a financially sound design concept*. For site-specific projects, a benefit/cost ratio at or above 2.0 is the minimum standard for eligibility. Low-cost systematic countermeasures may be better suited to a program-based benefit/cost analysis.
4) *All project documentation is subject to review and eligibility determination by the multi-agency Highway Safety Advisory Committee*. INDOT and FHWA retain the right to refuse Federal safety funding for projects that can not document eligibility (justification of need) and cost effectiveness.
5) *Where new devices are installed, the owner agency agrees to fund all future maintenance.*
6) *Post-construction analysis is a requirement for all completed projects*. For site-specific projects, the normal standard is comparison of crash history for three continuous years before the start and end of project construction. Other low-cost systematic improvements not based on crash history may have post-construction reporting periods of different length.

All phases of project implementation (Preliminary Engineering, Right-of-Way, Construction, and Construction Engineering/Inspection) are eligible under the HSIP program; however, HSIP funds may not be used as a component of a larger project. Local Public Agencies will be required to provide a minimum local match in the amount of 10% of the project cost.

Project Selection

There are two project categories for HSIP funding: low-cost systematic improvements (e.g., sign replacement, backing plates on signal heads, pedestrian countdown signals, etc.), and site-specific improvements (e.g., roadway realignment/reconfiguration, new signals, etc.). In keeping with statewide and federal goals, low-cost systematic strategies are preferred strategies. Some large scale site-specific projects, such as intersection reconstruction, would rapidly expend the funds and could tie up multiple years of funding. In addition, such projects would likely involve right-of-way acquisition, which would cause a significant lag in project implementation. Low-cost systematic and smaller scale site-specific projects can be implemented more quickly and are preferred.

[1] Indiana Department of Transportation. Local Highway Safety Improvement Program Project Selection Guidance. July 2009.
[2] Indiana Department of Transportation. Strategic Highway Safety Plan. October 1, 2010

Project selection procedures differ for low-cost systematic and site-specific projects. Generally, site-specific projects require a greater burden of proof on the applicant to demonstrate the cost-effectiveness of the proposed strategy. A Road Safety Audit (RSA) must be performed for all proposed HSIP projects, regardless of type. The specific project selection procedures are detailed below.

Low-Cost Systematic Improvements

The low-cost systematic improvement project types listed below are eligible for BMCMPO HSIP funding. LPAs should prioritize improvements based on the greatest anticipated safety benefit. The project application requires the LPA to discuss its prioritization method. LPAs are required to perform the benefit/cost analysis and Road Safety Audit (RSA) reports no later than the design phase of the project. It is not necessary to demonstrate a particular cost/benefit ratio for these types of projects.

1) *Conduct replacement of outdated regulatory and, warning signs to meet Manual of Uniform Traffic Control Devices (MUTCD) retroreflectivity requirements*. The basis for this project type is to assist LPAs in meeting the Federally mandated requirements to upgrade warning, regulatory, and guide signs to current standards of the MUTCD.[3] Regulatory and warning signs are eligible for replacement based on the following criteria:
    a. Signs that are known to be in place longer than 10 years
    b. Signs that do not have prismatic sheeting
    c. Signs that are damaged to the extent that their nighttime retroreflectivity is inadequate.
    d. Signs that fail to meet minimum retroreflectivity requirements
    e. If the cost estimate exceeds available funding, replacement of signs will be prioritized on the basis that warning and stop signs are highest priority followed by other regulatory and guide signs.
2) *Upgrade traffic signals to a minimum of one signal head per travel lane*. The basis for this project type is a well established crash reduction factor associated with this countermeasure. Proposed locations can be prioritized based on crash history and traffic volume.
3) *Install black backing plates on all signal heads at a traffic signal*. The basis for this project type is a well established crash reduction factor associated with this countermeasure. Proposed locations should be prioritized based on crash history and traffic volume.
4) *Install pedestrian push button and countdown heads at traffic signals*. This countermeasure is described in INDOT Design Standards and is eligible at public road crosswalks. Prioritization of locations should be made according to crash history, pedestrian volume, traffic volume, and pedestrian conflicts.
5) *Install new pedestrian crosswalk warning signs, flashing beacons, special pavement markings and refuge areas*. Justification of locations should be according to a documented pedestrian plan that identifies corridors serving pedestrian traffic generators such as multimodal trails, schools, libraries, retail and Central Business District (CBD). Proposed locations should be prioritized based on traffic volume, and pedestrian conflicts.
6) *Make changes to signal timing to improve safety*. The basis for this project type is a well established crash reduction factor associated with this countermeasure. Proposed locations can be prioritized based on crash history and traffic volume.
7) *Install new lighting at intersections and at trail crossings*. The basis for this project type is a well established crash reduction factor associated with this countermeasure. Proposed locations should be prioritized based on crash history, traffic volume, and pedestrian conflicts.
8) *Install new guardrail end sections upgraded to current standards*. This activity is considered preventative maintenance under HSIP guidance that allows for the replacement of substandard

[3] http://safety.fhwa.dot.gov/roadway_dept/night_visib/policy_guide/

guardrail end sections (such as buried ends) with current guardrail end sections contained in INDOT Standards and Specifications. In order to provide the proper transition to existing guardrail, not more than 100 feet of the existing guardrail may also be replaced at each end section. Proposed locations should be prioritized based on crash history and traffic volume.

9) *Install new guardrail at approved locations where none existed before*. New runs of guardrail may be placed according to INDOT Standards and Specifications where the need is determined, according to Chapter 49 of the INDOT Design Manual. Proposed locations should be prioritized based on crash history and traffic volume.
10) *Install new stop signs at railroad crossings that lack active warning devices*. The basis for this project type is a well established crash reduction factor associated with this countermeasure. The LPA may install new stop signs at any public road crossing of an active railroad line that currently lacks active warning devices such as railroad activated lights and gates. If existing stop signs are present but are in poor condition they may be replaced under the basis of item 1 above. Proposed locations should be prioritized based on crash history and traffic volume. The placement of any new stop sign requires an engineering analysis for justification of placement. The LPA should coordinate the placement of traffic control devices at railroad crossings with the railroad.
11) *Other improvements as authorized by INDOT/FHWA*. Certain systematic improvements may be authorized on a temporary basis by INDOT and FHWA in order to allow MPOs additional flexibility in spending HSIP funds. These supplemental authorizations, when applicable, will be conveyed to the LPAs during the annual HSIP call for projects.

Site-Specific Improvement Projects

The selection process for site-specific improvement projects entails a greater level of analysis than is required for low-cost systematic improvements. In particular, a benefit/cost ratio greater than 2.0 is required for all site-specific projects. Additionally, projects must be located at one of the top 50 crash locations in the County, or another location formally approved by the Policy Committee. Road Safety Audits (RSA) are also required for site-specific projects. The RSA report should define the safety issues and identify alternatives and recommended crash countermeasures. The RSA team must consist of independent un-biased experts. The LPA application must include a formal written response to the findings of the RSA team. The LTAP HELPERS Engineer can assist the LPA in locating qualified team members for the RSA.

The benefit/cost ratio is based on the relationship of the type and number of crashes to the specific countermeasures proposed. Therefore, the proposed treatment must be capable of reducing the types of crashes associated with the site. In order to facilitate benefit/cost analysis, the BMCMPO will provide a benefit/cost spreadsheet to the Local Public Agencies (LPAs). To complete the worksheet, it will be necessary for the LPAs to consult the police reports for the crashes under consideration. At the request of the LPA, the BMCMPO can provide a list of the crash record numbers for any particular location so that the crash reports can be more easily obtained. Relationships between crash type and countermeasures are detailed in FHWA's "Desktop Reference for Crash Reduction Factors."

In order to be eligible for BMCMPO HSIP funding, the following must be satisfied:

1. The LPA must be within the BMCMPO Planning Area Boundary; and
2. The proposed site-specific improvement project location must be exclusive of INDOT facilities, including intersections where a non-INDOT facility intersects or adjoins an INDOT facility; and

3. The proposed site-specific improvement project location must be identified in the list of the top 50 fatal/incapacitating injury crash locations in the most recent BMCMPO Crash Report, as included in the HSIP Call for Projects. LPAs may appeal to the Policy Committee to allow a project location that is not on the list of eligible project locations. Such appeals may be made concurrent to or prior to applying for HSIP funding. If the appeal is successful, the proposed location will be added to the list of eligible project locations.

Applications for site-specific improvement projects at eligible locations will be prioritized based on the following criteria (total of 100 points possible):

Factor	***Measure***	***Points***
Safety*	More than 2.5 Crashes per MEV	**30**
	More than 2.0 Crashes per MEV	20
	More than 1.5 Crashes per MEV	15
	More than 1.0 Crashes per MEV	10
	More than 0.5 Crashes per MEV	5
Benefit/Cost	Greater than 10	**30**
	Greater than 5	20
	Greater than 2	10
	Greater than 1	5
	Less than (or equal to) 1	0
Status of Project	Construction & ROW plans complete	**25**
	PE & Environmental complete	20
	Initial request for construction funding only	15
	Initial request for construction and ROW funding	10
Local Share OVER Amount Required	25% or more additional	**15**
	20% or more additional	12
	15% or more additional	9
	10% or more additional	6
	5% or more additional	3
	Required local amount	0

*For projects that apply to a road segment rather than an intersection, crash rates should be calculated per MVMT (Million Vehicle Miles Traveled) rather than MEV (Million Entering Vehicles).

Project Application Requirements

LPAs must include the following materials in their applications:

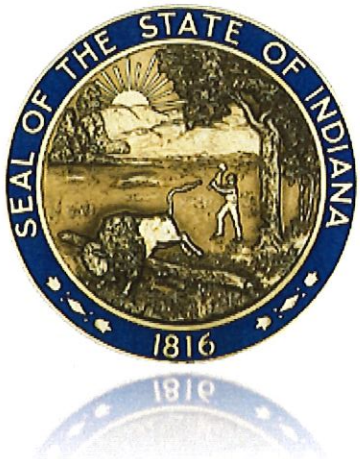
1) A cover letter signed by the highest elected official of the LPA that owns or maintains the public road(s) where the proposed infrastructure project will be constructed and a signature by the LPA's highest financial official. The letter shall address all of the following:
   a) Project intent, including the project location and type of work.
   b) Explanation of how it was determined that this is one of the worst problems in the area.
   c) Discussion of the relationship between the type and number of crashes and the treatments proposed.
   d) Discussion of other treatments that were considered and why were they rejected.

   e) Name and title of the LPA employee that is the primary contact for the project and who is responsible for sign off on project reports and other project milestones.
2) A completed Benefit/Cost worksheet or, in the case of systematic improvements, discussion of the prioritization method used.
3) A map of the location(s) to be improved. For some low-cost systematic improvements involving multiple locations (e.g., sign replacement), a simple dot map is sufficient.
4) A data collection plan for pre/post treatment comparison (some low-cost systematic improvements may not be amenable to evaluation). The data collection plan should clearly indicate the LPA's ability to evaluate the effectiveness of the project, using three years of pre-treatment data and three years of post-treatment data. The analysis should include a breakdown of the type and number of crashes in each of the six years, and the estimated benefits of the project, based on the number of crashes reduced in the three year post-treatment period. Standard crash cost estimates are incorporated into the Benefit/Cost worksheet. Crash data collection and analysis will be the responsibility of the LPA.
5) Preliminary cost estimates for each phase of the proposed project (e.g. PE, ROW, Construction, and Inspection Services).
6) A proposed timeline for completion of each phase of the project.
7) For site-specific projects only:
   a) Road Safety Audit report, including RSA team member list, description of safety problems, and recommended crash countermeasures.
   b) LPA response to RSA recommendations.

HSIP Project Selection Process

The process for awarding BMCMPO HSIP funds to LPA projects shall be as follows:

1. The BMCMPO will issue a Call for Projects.
2. LPAs will submit completed project applications with appropriate supporting materials to the BMCMPO by the Call for Projects deadline.
3. BMCMPO staff will review submitted project applications and, if necessary, work with LPAs to refine or clarify their applications.
4. BMCMPO Staff and LPAs will present project applications to the Citizens Advisory Committee (CAC) and Technical Advisory Committee (TAC). The CAC and TAC will prioritize the project applications and make recommendations as to which project(s) should be awarded HSIP funding. These recommendations will be forwarded to the Policy Committee.
5. The Policy Committee will approve the local HSIP funding awards.
6. BMCMPO Staff will submit the approved funding awards to INDOT for evaluation by the Highway Safety Advisory Council (HSAC).
7. The HSAC will make a final determination regarding the BMCMPO HSIP funding awards.
8. Approved projects will be added to the Transportation Improvement Program (TIP) in accordance with BMCMPO TIP amendment procedures.



HIGHWAY SAFETY IMPROVEMENT PROGRAM LOCAL PROJECT SELECTION GUIDANCE

Effective for projects submitted for calls after

December 1, 2010

http://www.in.gov/indot/div/engineering/shsp.htm

Indiana Department of Transportation

3/21/2014

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Local Highway Safety Improvement Program Project Selection Guidance

http://www.in.gov/indot/div/engineering/shsp.htm

Effective for projects submitted for calls after July 1, 2010

Introduction

The "Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users" (**SAFETEA-LU**), which was signed into law on August 10, 2005, established the Highway Safety Improvement Program (**HSIP**) as a core Federal-aid program. The overall purpose of this program is to achieve a significant reduction in traffic fatalities and serious injuries on all public roads through the implementation of infrastructure-related highway safety improvements.

Detailed provisions pertaining to the HSIP, such as qualifying projects and federal funding share, are defined in Section 148 of Title 23, United States Code (**23 USC 148**). Required provisions include State development of a Strategic Highway Safety Plan (**SHSP**), in consultation with other key State and local highway safety stakeholders, and a number of reporting requirements.

To ensure that application of the HSIP is organized and systematic providing the greatest benefits to safety, the Federal Highway Administration (**FHWA**) has established a formalized HSIP process that consists of three major components: planning, implementation and evaluation. These requirements are contained in Part 924, Title 23 Code of Federal Regulations (**23 CFR 924**).

The US Code, federal regulations and policy guidance are available at http://safety.fhwa.dot.gov/hsip/policy_guide/#code.

Complete Federal Highway Administration HSIP guidance is available at http://safety.fhwa.dot.gov/hsip/

This Indiana Department of Transportation (**INDOT**) document provides guidance to govern Local Public Agency (**LPA**) participation in HSIP. Presented here are practices for LPA and Metropolitan Planning Organization (**MPO**) activities to identify eligible safety improvement projects for HSIP funding. The features addressed in this document include among others, monitoring network performance relative to traffic safety and screening sites and features for safety issues, identifying feasible crash countermeasures, analyzing cost effectiveness of alternative investment choices and prioritizing needs among candidate projects to deliver an efficient safety program.

Procedures contained in this document are subject to change following evaluation for effectiveness in future guidance.

Guiding Principles

The impact that traffic crashes have on the economy of Indiana is measured in terms of billions of dollars per year – greater than $3-Billion in 2009. While property damage crashes provide valuable information on potential safety problems, the federal charge for the application of highway safety funding directs a focus on fatal and severe injury crashes. Consequently, the purpose of local HSIP project funding is to deliver to our road users cost effective countermeasures to hazards identified through data analysis as the greatest contributors to incapacitating injury or fatality producing crashes.

Doing so requires identifying either high crash locations with demonstrated overrepresentation of severe crashes or a systematic application of proven countermeasures to address system-wide safety needs. Since a limited amount of funding is available to make roads safer, Indiana must make fiscally sound choices in where and how to spend safety funding. Governments can have a great number of potential problem sites or systematic safety needs and there is limited HSIP funding to address them. Therefore, consistent systematic rating and prioritization of safety needs and countermeasures is the best means to making wise spending decisions.

In all cases, candidate projects must demonstrate eligibility in order to receive HSIP funding.

Identifying Traffic Safety Problems and Countermeasures

INDOT requires that projects submitted for funding under the HSIP address a highway safety problem identified as an infrastructure emphasis area in Indiana's SHSP. Table 1 lists eligible HSIP projects and the corresponding Indiana SHSP emphasis areas (Table 2).

Table 1 Highway Safety Improvement Project Types

	Safety project Type	SHSP Emphasis Area(s)
1	An intersection or road segment safety improvement	1,2,5
2	Pavement and shoulder widening (including addition of a passing lane to remedy an unsafe condition)	1,2
3	Installation of rumble strips or another warning device, if the rumble strips or other warning devices do not adversely affect the safety or mobility of bicyclists, pedestrians, and the disabled	1,2
4	Installation of a skid-resistant surface at an intersection or other location with a high frequency of accidents	1,2
5	An improvement for pedestrian or bicyclist safety or safety of the disabled	5
6	Construction of any project for the elimination of hazards at a railway-highway crossing that is eligible for funding under section 130, including protection devices	3
7	The conduct of a model traffic enforcement activity at a railway-highway crossing	3
8	Construction of a traffic calming feature	5
9	Elimination of a roadside obstacle	1
10	Improvement of highway signage to meet MUTCD retroreflectivity requirements and new pavement markings where none existed before	2,3,5
11	Installation of a priority control system for emergency vehicles at signalized intersections	2,4
12	Installation of a traffic control or other warning device at a location with high crash potential	1,2
13	Safety-conscious planning	All
14	Improvement in the collection and analysis of crash data	All
15	Planning integrated interoperable emergency communications equipment, operational activities, or traffic enforcement activities (including police assistance) relating to workzone safety	4
16	Installation of new guardrails, barriers and crash attenuators where none existed before.	1,4
17	Construction, installation and maintenance of signs (including fluorescent, yellow-green signs) at pedestrian-bicycle crossings and in school zones	2,5
18	Construction and operational improvements on high-risk rural roads	1,2,3,4,5
19	A safety project under any other section of USC Title 23 -- includes a project to promote the awareness and education of the public concerning highway safety matters (including motorcyclist safety) and a project to enforce highway safety laws.	3,5,6

Table 2 SHSP Emphasis Areas

1	Lane Departure Crashes
2	Intersection Crashes
3	Large Vehicle Conflict Crashes (Large Trucks and Trains)
4	Roadway Restriction Related Crashes (quick crash clearance and work zone safety)
5	Vulnerable User Crashes (pedestrian, bicycle and motorcycles)
6	Human Factor Contribution to Crashes (Alcohol, Occupant Protection, Young Drivers and Dangerous Driving)

The FHWA provides guidance on safety countermeasures that advance highway safety that should be a consideration in all types of federal aid funding. The Transportation Planner's Safety Desk Reference identifies and summarizes the information in the National Cooperative Highway Research Program (**NCHRP**) Report 500 Series of interest to transportation planners. It is located on the FHWA Web site at: http://tsp.trb.org/assets/FR1_SafetyDeskReference_FINAL.pdf

For expanded guidance and information regarding best practices and treatments for specific areas of traffic safety, the complete National Cooperative Highway Research Program (**NCHRP**), Report 500 series is available on the Transportation Research Board (**TRB**) web site at http://pubsindex.trb.org/default.asp

HSIP Project Eligibility Requirements

All project documentation is subject to review and eligibility determination by the multi-agency Highway Safety Advisory Committee (**HSAC**). In order to provide advice regarding policy for the various safety programs, the INDOT Office of Traffic Safety has established a multi-agency HSAC. The HSAC will also act as the final authorization body for determination of eligibility of all local safety program project funding decisions. The HSAC will provide oversight of the project selections made by MPOs and will be the direct approving authority for proposed projects from public agencies outside MPO areas. FHWA and INDOT retain the right to refuse funding eligibility to any proposed project that the HSAC finds does not meet the minimum requirements for federal aid safety funding as set out by federal guidance and/or this document.

Note: INDOT will not approve the use of HSIP funds for projects intended to address capacity enhancement, beautification, economic development, bridge need or to meet federal requirements for a railroad quiet zone. Additionally, annual maintenance needs are not eligible for federal aid.

There are six general requirements guiding HSIP project eligibility:

☑ **REQUIRED ELEMENT #1**

Addresses SHSP Emphasis Area

The first eligibility requirement for local HSIP funding is that the project must address one of the emphasis areas (see Table 1) in Indiana's SHSP, available at http://www.in.gov/indot/files/shsp.pdf

In January 2009, with the promulgation of new HSIP regulations in 23 CFR Part 924, INDOT began a process to evaluate and revise the original SHSP. This action successfully completed in late 2010 with the signing of the SHSP by Governor Mitch Daniels and its endorsement by FHWA.

This new document provides coordination of purpose, data sources, problem identification and emphasis areas. The lead state agencies evaluate implementation action plans annually as part of the following federally required highway safety action plans and reports, Highway Safety Improvement Program (Per 23 CFR 924), Highway-Rail Grade Crossing Safety Action Plan (Per 49 U.S.C. § 202), Highway Safety Plan (Per 23 U.S.C. § 402), and Commercial Vehicle Safety Plan (Per 49 CFR 350).

☑ **REQUIRED ELEMENT #2**

Needs Analysis

The vast majority of crashes involve driver error due to confusion or inattention to traffic and road conditions. However, conditions in the roadway environment often contribute to recurrent crashes that in other situations may not have a negative effect on safety and the causes are sometimes not easy to isolate. Without analysis of the specific situation, the correct set of countermeasures may not be readily apparent. The best practice is to begin all safety evaluations without a preconceived selection of the countermeasure. For high crash locations, a review of the pattern of crashes is most often vital to determining the appropriate set of countermeasures. If review of appropriate data indicates a repeating pattern of crashes at disparate locations or a type of location is encountering high risk of future severe crashes, it may be appropriate to deploy a low cost crash countermeasure systematically over a wide area or corridor.

It is required that selection of countermeasures for an HSIP funded high crash location project employ a review procedure modeled on the RSA process to evaluate conditions and crash history by an interdisciplinary team involving interests including engineering and emergency responders along with parties representing road and/or adjacent land users. While the RSA process utilizes an independent team of experts to bring a fresh perspective to the existing conditions, it is not always practical for the RSA team to work entirely independently of the local road agency but the team's recommendations must always be free of preconceived decisions. The report generated from an RSA process should provide all the documentation necessary to make a decision regarding the use of HSIP funds. Local

public agencies must include in their application, a response to the RSA recommendations. A good place to begin learning about the RSA process is at http://safety.fhwa.dot.gov/rsa/.

An RSA may also help define the size and area of treatment for some low cost systematic countermeasures and is the *recommended* approach.

> ***Note: RSA teams can also be used to review projects under design by other designers to look for those subtle factors that may lead to future crash problems.***

Sources of crash data

Review of crash history is a necessary part of discovering sites with safety concerns and is frequently needed to determine the best countermeasure to the safety concerns. The best source of data for analysis of crash histories is provided by the Indiana State Police Vehicle Crash Records System (**VCRS**) database that is now a part of the Automated Reporting Information Exchange System (**ARIES**) website. The ARIES system undergoes continual updates and improvement so that crash data is becoming increasingly more available and accurate. Therefore, any multiyear crash analysis should be conducted using the most recent crash data available. Access to this data source is available to MPOs and most LPAs. While ARIES should serve as the primary source for essential crash data, other legitimate sources for reliable data may supplement ARIES data. For example, the Fatal Accident Reporting System (**FARS**) or local law enforcement sources may be appropriate data sources.

While strictly speaking it is not required to use calendar years as the basis for all multiyear crash history analysis, most of the available and new analysis tools use a calendar basis for their equations so INDOT *recommends* the use of 3 to 5 continuous calendar years for analysis of crash history.

Safety Summaries

If an LPA lacks the resources to conduct an area-wide crash analysis there are other means to identify sites where safety issues could exist. An LPA may use the annual Five Percent Report or some other pre-approved local safety monitoring process to determine sites for further analysis and possible eligibility for selection as safety projects. Any locally developed safety monitoring process must include crash severity as part of the process. The Five Percent Reports for Indiana and all other states is available on the FHWA website at http://safety.fhwa.dot.gov/hsip/fivepercent

The Indiana Criminal Justice Institute (**ICJI**) provides an Indiana Crash Facts Book on its website at http://www.in.gov/cji/2572.htm that contains crash data summaries. While focused primarily upon driver behavior contributions to crashes, planners can find helpful county-level data that can inform comprehensive local safety planning.

☑ *REQUIRED ELEMENT #3*

Financial Analysis

Safety program dollars are limited in amount but they present an opportunity to save lives and prevent severe injuries so it is very important that this funding be used wisely. To use HSIP safety funds in the best manner possible federal requirements currently call for a financial analysis to document the safety benefits versus the project's lifecycle cost. A Benefit/Cost analysis (**B/C**) is a requirement for individual sites that have a high priority due to severe crash history. For projects proposed to address sites of this type INDOT *recommends* a B/C ratio at or above 2.0 based on acceptable crash reduction factors and an accurate total project cost estimate including all phases of project development is the acceptable financial standard. In all cases, 1.0 is the minimum acceptable B/C ratio.

Fortunately, tools are available to assist the crash and financial analysis process. The Hazard Analysis Tool (**HAT**) Software provides a relatively easy-to-use benefit/cost analysis form.

NOTE: LPAs, MPO's and RPO's can obtain HAT software from the INDOT Office of Traffic Safety at no cost.

Most systematically applied low cost crash countermeasures also should use a Benefit/Cost analysis to establish financial eligibility. However, some low cost crash countermeasures applied on a system wide basis do not readily lend themselves to conventional B/C analysis so, in those cases, a program planning-based method for prioritizing and assessing the merits of investment choices may be used.

☑ *REQUIRED ELEMENT #4*

Maintenance of HSIP Installations

Where the approved HSIP project involves the installation or placement of new traffic safety devices the LPA will commit in the project agreement to either identify an existing or establish a new maintenance program to maintain the devices. The LPA agrees to replace the devices when damaged or worn out at their own expense per the criteria established by the aforementioned maintenance program.

☑ *REQUIRED ELEMENT #5*

Post Construction Safety Evaluation

Federal guidance for HSIP funding requires that the LPA agree to conduct a post construction safety performance analysis of the project for a pre-established period before and after construction of the project. For those projects that require analysis of crash history, there must be an analysis of crashes of the type identified in the project proposal for a minimum period of three full years before and three full

years after construction of the project is complete. For those systematic improvements that don't lend themselves to approval based solely on analysis of site crash histories a time period will be identified in the project proposal that will define the pre and post construction analysis process used to justify project funding . The post construction analysis report of any projects taking place in communities within an MPO will be submitted to its' MPO for approval while communities outside MPO areas will submit their reports to the Local Technical Assistance Program (**LTAP**) HELPERS manager for approval. The MPOs and the HELPERS Manager will then forward the reports to the INDOT Traffic Safety Office to meet federal reporting requirements.

☑ *REQUIRED ELEMENT #6*

Cover Letter

Each LPA application must be accompanied by a cover letter signed by the highest elected official of the local public agency (county, city or town) that owns or maintains the public road(s) where the proposed infrastructure project will be constructed. The cover letter must include the following elements:

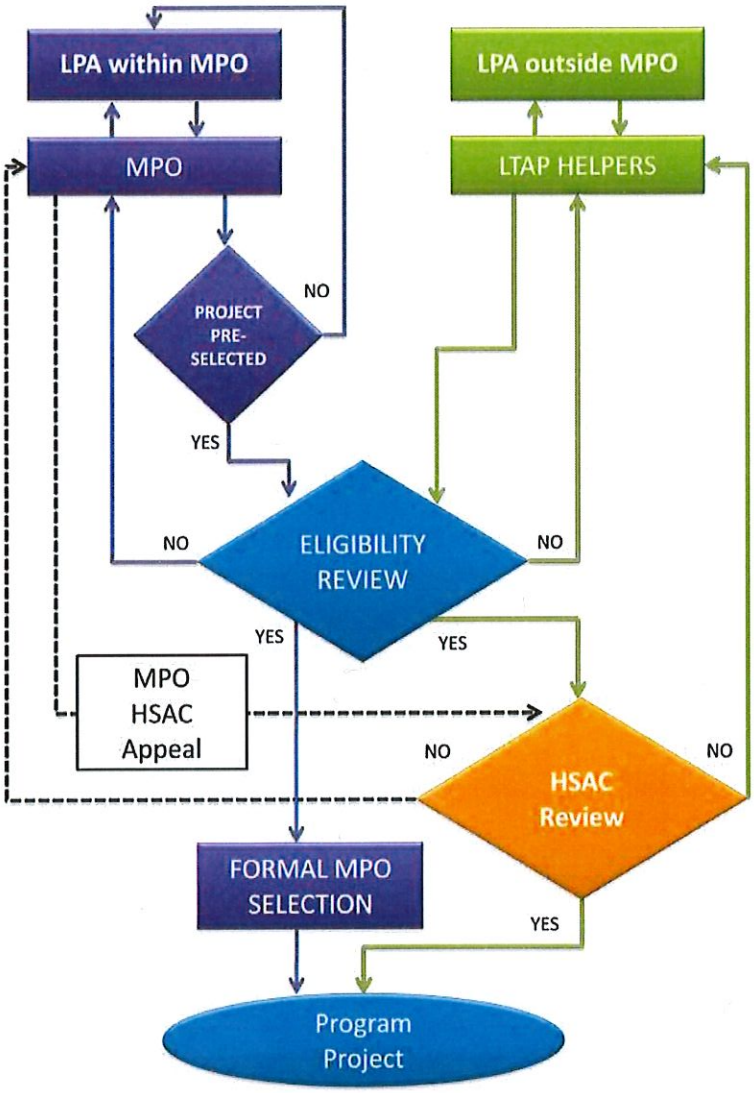
- The project cost estimate including all anticipated phases of project development and construction. This estimate will set the maximum amount of HSIP funding (federal aid and match) being sought.
- The timeline for project development and construction.
- Where new devices are installed, the owner agency must acknowledge the requirement to fund all future maintenance.

Steps to Project Selection

This section lays out the basic steps that must be followed for a project to be approved for Federal Aid using funding under the HSIP.

Project selection for communities inside of MPO areas will be managed by their MPO. Project selection for communities outside of MPO areas will be managed by the LTAP HELPERS project. HELPERS assist LPA and Rural Planning Organizations (**RPO**). A description of the HELPERS project can be found in the appendix.

Chart 1 Project application flow



An LPA should follow four steps to apply for HSIP project funding:

☑ ***Step #1*** Use a methodical process to establish safety needs

- Any candidate project affecting an INDOT maintained facility must have documented approval from the appropriate INDOT district planning director.
- LPAs may use the annual Five Percent Report or some other pre-approved local safety monitoring process to determine site locations for safety analysis.
- Crash data collection and analysis when required must include a minimum of three continuous years of crash data. The ARIES Web portal at http://crashreports.in.gov allows free access for government agencies to Indiana's State Police Crash database, which is the state of Indiana's repository for traffic collision reports completed by all of Indiana's law enforcement agencies. Access can be obtained by filling out a Web Access Agreement, which can be obtained by contacting John Nagle, Safety Management Engineer, (317-232-5464), jnagle@indot.in.gov.
- Traffic volume data from the same years as crash data (when available)
- All relevant roadway inventory and/or condition data.
- Likewise, a rational process must be used to determine need for low cost systematic safety improvements with a known crash reduction factor. Location selection should tie crash history or factors causing greater than normal exposure to crashes to the sites chosen.

☑ ***Step #2*** Prioritize safety needs according to the severity of the problem

- The number or rate of severe crashes can best be expressed by the index of crash costs (**Icc**) in the HAT software.
- Other pre-approved methods for establishing project priority may be used. MPO partners should contact the INDOT Traffic Safety Office to discuss pre-approval of your suggested prioritization method prior to using an alternate method as part of any call for local safety projects.
- The severity of a safety site can usually be established by using form F1 on the HAT Software version 2.1.79 (distributed after 8/7/2007). The Index of Crash Cost (Icc) indicates the relative severity of an intersection or road segment by number of standard deviations from nominal safety. This is a very good indicator of relative severity.
- Note that the Highway Safety Manual (**HSM**) method examines a wider variety of road types but does not consider crash severity so the applicant still must identify the number of fatal and severe injury crashes reported at the location.

- Prior to making any application for project funds, an MPO submit an alternate prioritization methodology for review and approval by the HSAC. Note that crash severity is a required element to be used in any alternate method. If the alternate methodology is approved by the HSAC, the LPAs within the planning area of that MPO may be permitted to use it to provide a priority for candidate project applications.

☑ **STEP #3** Use an RSA to identify crash problems and potential solutions for high-crash locations

- The goal of the RSA is to use unbiased safety experts to provide a fresh view of safety needs and to produce recommendations that the roadway owner will consider and provide a response to their recommendations.
- Any LPA contemplating safety improvements to an intersection or road segment should use an RSA process to define the problem(s) and establish alternatives for viable safety improvements. Submission of a candidate location for HSIP funding requires an RSA report to define the safety issue(s) and recommend effective crash countermeasures.
- Information regarding the RSA process is available on the Federal Highway Administration Website at http://safety.fhwa.dot.gov/rsa/. LTAP may also be a source of information on the RSA process, and will maintain a list of persons trained to participate on RSA teams.
- Communities outside MPO planning areas may contact the HELPERS program to assist in facilitating an RSA upon request
- The basic elements of an RSA are:
    - Assemble an RSA Team (Independent experts to provide un-biased advice)
    - RSA Team conducts the safety audit (On site inspection and data review)
    - Produce an RSA report including safety improvement recommendations
    - The LPA must provide a written response to the RSA recommendations

☑ **STEP #4** Apply for funding approval through the process established for your LPA

- As described below and in Chart 1, all applications will be submitted via the appropriate organization depending on the planning group of the LPA. Communities inside MPO planning areas submit to their MPO, while communities outside MPO areas submit to the HELPERS Project Manger. Final project eligibility determination will be made by the HSAC.
- The HSAC will conduct up to two calls for candidate projects each year.

- MPOs will determine priorities for safety funding in their area and submit the highest priority candidate HSIP projects to the HSAC for final determination of eligibility.
- Each MPO safety project call concludes with the submission of a list of formally selected projects with prioritized by the fiscal year of construction as reflected in the local TIP.
- No reimbursement of project costs will be made using HSIP funds until project eligibility has been authorized by the FHWA.
- LPAs outside of MPO areas will first submit their candidate project applications to the HELPERS Engineer at LTAP. The HELPERS Engineer will review the applications to determine which candidate projects are appropriate for possible federal aid and will forward those applications to the HSAC for determination of project eligibility.
- Both the MPOs and the HELPERS Project will be responsible for reviewing the candidate applications and will only approve and forward those applications that have appropriate intent to improve safety, use accurate analysis techniques and are complete with all required elements.

Selection Process for Public Agencies within MPO areas

Applications for funding of candidate projects may be submitted by an LPA to the MPO at any time but approval of funding will be withheld by the MPO until the HSAC approves project eligibility at the conclusion of the cycle established for each call for safety projects. Funding applications must be submitted by the MPO on or before the closing date of the project call to be considered for funding in that cycle. After the MPOs have pre-selected safety projects, they will forward a list of the projects and the application documentation to the INDOT Office of Traffic Safety where they will be date stamped and reviewed for completed documentation of need and financial prioritization. If all of the listed project applications are complete, the list of projects from each MPO will be forwarded to the members of the HSAC for finding of eligibility.

NOTE: Electronic submittals are encouraged and may be sent to: mholowaty@indot.in.gov

INDOT and FHWA retain final authority to deny funding for any project not meeting the requirements set out in FHWA Safety Program Guidance. The Office of Traffic Safety will forward to the HSAC the documentation of any project deemed to have outstanding questions regarding its eligibility for safety funding. The HSAC may then vote three options:

1. The HSAC may vote to approve the funding request as is.
2. The HSAC may table the project funding request and request the LPA to furnish additional justification documentation. The MPO will be asked to remove temporarily the project in

question from their current list of approved safety projects until the needed documentation is submitted and eligibility is approved at the next call for safety projects.

3. The HSAC may vote to deny HSIP funding to the project and inform the MPO to remove the project from their list of approved HSIP projects.

A determination by the HSAC that a project in is ineligible for HSIP funding is final. In addition, the HSAC will occasionally select at random project(s) for detailed review.

The intent is that whenever possible, INDOT will report the funding decisions for each MPO within 60 days after a "Call for Safety Projects" has closed. The current intent is to have two such project calls each year.

MPOs each establish their own local process to answer the state calls for projects as well as to meet their obligations under 23 CFR Part 450. This process typically follows these steps:

1. MPO issues a local HSIP call for projects to solicit applications from eligible LPAs in the metropolitan planning area. This call for projects will normally coincide with and support INDOT's call for local HSIP projects to Group III and IV LPAs.

2. Eligible LPAs submit complete project applications to the MPO by the deadline specified in the MPO's call for projects.

3. MPO validates consistency of the proposed project with the adopted Long Range Transportation Plan, determines initial project eligibility under the HSIP Program, and develops a prioritized and fiscally constrained list of eligible projects to be considered by the HSAC this program cycle.

4. MPO uploads the prioritized and fiscally constrained list of projects, along with the project applications and other supporting documentation, to the appropriate section of the Indiana MPO Council FTP Site by the established INDOT deadline for submitting projects to be considered by the HSAC this program cycle.

5. INDOT Office of Traffic Safety disseminates uploaded project applications and support documentation to the HSAC.

6. HSAC evaluates submitted project applications and votes to take one of the following actions regarding each project:

    a) Approve project eligibility based on the information submitted,
    b) Delay an eligibility determination until such time as the MPO and the LPA submit any additional information requested by the HSAC, or
    c) Disapprove the request to fund the project with HSIP funds. A determination by the HSAC that a project is ineligible for HSIP funding is final.

7. INDOT Office of Traffic Safety endeavors to publish and distribute a list of approved/disapproved projects within 60 days of the end of the program cycle to the MPO.
8. MPO notifies the LPA of the HSCA determination.
9. In consultation with the LPA, the MPO selects validated projects to be programmed into the appropriate year of the TIP and STIP.
10. LPA and MPO work with the INDOT District LPA Coordinator to advance programmed projects following procedures contained in the *INDOT LPA Process Guidance Document.*

Selection Process for Public Agencies outside MPO areas

For local public agencies outside MPO areas the HELPERS project will act as the gatekeeper that all applications for federal HSIP funding will have to pass in-order to reach the HSAC for a funding approval decision. The LTAP HELPERS program will contact the MPO and/or RPO for their areas and encourage their participation in all project identification and selection activities, as part of the HELPERS Project.

Funding applications must be submitted by the HELPERS Engineer on or before the closing date of the project call to be considered for funding in that cycle. INDOT and FHWA retain final authority to deny funding for any project deemed not to meet eligibility requirements as described above in the MPO Selection Process.

More detailed information regarding the operation of the HELPERS Project is available at the LTAP Web site at http://rebar.ecn.purdue.edu/LTAP/TechAssist/HELPERS.aspx

High Crash Location Projects

Many cities, towns and counties have intersections or short segments of roadway where a larger than usual share of crashes have occurred. In many cases, the number of crashes may not be much higher than usual but the severity of crashes has been unusually bad. Often these sites call for mid to relatively high cost safety improvements such as curve corrections or intersection improvement projects to add auxiliary turn lanes, roundabouts, Michigan left turn treatments or other innovative intersection designs.

Candidate projects intended to correct safety problems at a particular site should address the most severe crash problems identified by the LPA. Locations experiencing a history of fatal and incapacitating injury crashes will have priority over sites with property damage crashes or any other perceived need.

For individual intersections or short road segments a multiyear crash analysis must be presented that clearly demonstrates the safety needs at the location and define the size of the problem. The analysis must use a minimum of three continuous years of crash data (most analysis software uses calendar years) and (when available) reasonably accurate traffic volume data for the same period. The same data set will be used in the economic analysis required as part of the application. In addition, the LPA should have a method to demonstrate that the proposed project has been prioritized using an approved method and is one of the highest safety needs in the LPA's area.

It is required that LPAs use the statewide Vehicle Crash Records System (**VCRS**) database maintained by the Indiana State Police and available via the ARIES website as the source for crash data. LPA's may include local law enforcement sources of crash data; however, they should include an explanation as to why the local data source is a better choice. Note the failure of a local enforcement agency to meet the requirements of state law and submit all crash records to the Indiana State Police in a timely manner may be cause to deny approval for HSIP funding of candidate projects in that jurisdiction.

Low Cost Systematic - Improvement Projects

Proposals for the low cost systematic safety improvements noted below require justification documentation aggregated for the entire system as a single improvement project. However, whenever possible, analysis of crash data for a minimum of three continuous years or use of other data as described for each project type that would indicate an exposure to severe crashes at a greater than nominal rate or probability should be documented.

Short Form Application for High Priority Systematic Countermeasures

Certain High Priority Low Cost Systematic Countermeasures have been amply demonstrated to provide a very strong benefit to safety in the state of Indiana. As a result, certain pre-selected types of systematic improvements need only submit a cover letter from the LPA and a form with project information. The form is located in the appendix. From the list below of Low Cost Systematic Countermeasures, items (1, 2, 3, 4, 5, 6 and 10) may use this simplified application process.

NOTE: Any federal-aid project is subject to review by the FHWA. LPA's are responsible for executing, documenting and recording a process that establishes installation priorities. Although submission of the process and determinations is not required for short-form project applications, LPA's are strongly encouraged to document their projects thoroughly.

Low Cost Systematic Countermeasures

1. ***High Priority ◆ Conduct replacement of outdated regulatory, warning and guide signs to meet MUTCD retroreflectivity requirements – Form Application Eligible!***

   The basis for this project type is to assist LPAs on meeting the federally mandated time requirements to upgrade warning, regulatory, and guide signs to current standards of the Manual of Uniform Traffic Control Devices (**MUTCD**) and allow for the use of local HSIP funds to accomplish the needed upgrades. The federal policy can be found at: http://safety.fhwa.dot.gov/roadway_dept/night_visib/policy_guide/

   NOTE: The LPA should use an existing inventory system to determine the regulatory, warning and guide signs that are eligible for replacement. If the LPA lacks an inventory system an RSA process may be used to assess the needs on a representative 10% of the road miles in that jurisdiction. If an RSA is used, creation of an inventory system must be a component of the project.

Criteria:

a) Signs that are known to be in place longer than 10 years

b) Signs that do not meet MUTCD requirements

c) Signs that are at the time of the inventory/RSA are damaged to the extent that their nighttime retroreflectivity is inadequate.

d) Signs that fail to meet minimum retroreflectivity requirements (reference below)

Reference from FHWA website: The standard in Section 2A.09 requires that agencies maintain traffic signs to a minimum level of retroreflectivity outlined in Table 2A-3 of the MUTCD.

NOTE: An appropriate cost estimate for replacement of selected warning, regulatory, and guide signs with prismatic sheeting will be obtained from two or more sign vendors. If the cost estimate exceeds available funding, replacement of signs may be prioritized on the basis that stop signs and warning signs are highest priority followed by regulatory signs and guide signs.

2. ***High Priority ◆ Upgrade traffic signals on public road approaches to a minimum of one signal head per travel lane – Form Application Eligible!***

   The basis for this project type is a well established crash reduction factor associated with this countermeasure. Proposed locations are recommended to be prioritized based on any two or more of the following criteria:

   a) crash history

   b) Icc value

   c) traffic volume

   d) B/C ratio

3. ***High Priority ◆ Install black backing plates on all signal heads on a public road approach traffic signal – Form Application Eligible!***

   The basis for this project type is a well established crash reduction factor associated with this countermeasure. Proposed locations are recommended to be prioritized based on any two or more of the following criteria:

   a) crash history

   b) Icc value

   c) traffic volume

d) B/C ratio

4. ***High Priority ◆ Make changes to yellow interval signal timing or interconnect to improve safety on public road approaches – Form Application Eligible!***

   The basis for this project type is a well established crash reduction factor associated with this countermeasure. Proposed locations are recommended to be prioritized based on any <u>two or more of the following criteria</u>:

   a) crash history

   b) Icc value

   c) traffic volume

   d) B/C ratio

5. ***High Priority ◆ Install pedestrian push button and countdown heads on a public road approach traffic signal – Form Application Eligible!***

   This countermeasure is described in INDOT Design Standards and is eligible at public road crosswalks. Prioritization of locations are recommended to be made according to a documented pedestrian plan that identifies corridors serving pedestrian traffic generators such as multimodal trails, schools, libraries, retail and central business districts. Proposed locations are recommended to be prioritized on:

   a) traffic volume

   b) estimated pedestrian conflicts

6. ***High Priority ◆ Install new pedestrian crosswalk warning signs, flashing beacons, special pavement markings and refuge areas on a public road approach– Form Application Eligible!***

   Justification of locations are recommended to be according to a documented pedestrian plan that identifies corridors serving pedestrian traffic generators such as multimodal trails, schools, libraries, retail and central business districts. Proposed locations are recommended to be prioritized based on <u>two or more of the following criteria</u>:

   a) traffic volume

   b) estimated pedestrian conflicts

   c) B/C ratio

7. *Improving visibility of intersections by providing lighting*

   The basis for this project type is a well established crash reduction factor associated with this countermeasure. Proposed locations must be prioritized based on two or more of the following criteria:

   a) crash history

   b) traffic volume

   c) estimated pedestrian conflicts

   d) B/C ratio

8. *Install new guardrail end sections upgraded to current standards*

   This activity is considered an approved HSIP activity to allow for the replacement of substandard guardrail end sections (such as buried ends) with current guardrail end sections contained in INDOT Standards and Specifications. In order to provide the proper transition to existing guardrail not more than 100 feet of the existing guardrail may also be replaced at each end section. Proposed locations must be prioritized based on any two or more of the following criteria:

   a) crash history

   b) Icc value

   c) traffic volume

   d) B/C ratio

9. *Install new guardrail at approved locations where none existed before*

   New runs of guardrail may be placed according to INDOT Standards and Specifications where the need is determined according to Chapter 49 of the INDOT Design Manual. Proposed locations must be prioritized based on any two or more of the following criteria:

   a) crash history

   b) Icc value

   c) traffic volume

   d) B/C ratio

10. ***High Priority ◆ Passive warning improvement at railroad crossings that lack active warning devices – Form Application Eligible!***

    The local highway agency may install (after agreement with the railroad owner) new cross buck assemblies in compliance with the 2009 MUTCD at grade crossings with only passive warning devices.

    NOTE: An engineering study is required to place a stop sign instead of the 2009 MUTCD required yield sign.

    Improvements are preferable at crossings of short lines and regional railroads. Installing improvements on a rail corridor rather than at 'spot' locations is also preferred. Coordination with INDOT district rail/utility coordinators is mandatory as they can assist LPA's prioritize deployment and secure the required agreement with the railroad owner.

Programming and Development of Selected Projects

Once the LPA has received notification that their candidate project has been approved for funding by the HSAC it is their responsibility to notify the Local Programs Coordinator at the appropriate INDOT District Office and schedule an initial meeting to set project parameters. MPOs are responsible for inclusion of approved project(s) in their Transportation Improvement Plan (**TIP**).

NOTE: INDOT will not program the approved project(s) into the INDOT scheduling system or include them in the Indiana State Transportation Improvement Program (INSTIP) before the initial meeting with the Local Programs Coordinator.

The "INDOT LPA Process Guidance Document" provides the process by which all LPA projects proceed through project development to contract letting.

After a determination of eligibility and notification of federal approval via FHWA Fiscal Management Information System (**FMIS**) form, HSIP funds are eligible for reimbursement of expenses for the preliminary engineering, right of way and construction phases of the project. (Including but not limited to environmental documentation, railroad coordination, utility coordination and construction inspection/engineering).

All projects are expected to be ready for construction no later than four years after approval for HSIP funding. After this date, the LPA must make a request for time extension with an explanation of the project development delay and a new proposed timeline for project completion. The HSAC retains the right to cancel funding of projects that fail to make acceptable progress toward construction within the approved timeline. The project owner or their designee will report on project status at the completion of every project development stage to the appropriate INDOT district LPA coordinator.

Appendix

HSIP Local Project Proposal Checklist

Financial Analysis Tools

HELPERS Program

Glossary

Application for High Priority Low Cost Systematic Highway Safety Improvement Project

HSIP Local Project Proposal Checklist

- ☐ Cover letter signed by highest elected official of the local public agency (county, city or town) that owns or maintains the public road(s) where the proposed infrastructure project will be constructed.
- ☐ Statement of project Intent (e.g. proposed project elements) must address one of the emphasis areas in the current Indiana Strategic Highway Safety Plan.
- ☐ project location (County, Township, City/Town and roadway)
- ☐ Work Type
- ☐ Total project cost (P.E., R/W, Const.)
- ☐ Project timeline with dates (P.E., R/W, Const.)
- ☐ Justification that this is one of the worst problems in your area**
- ☐ Financial analysis**
- ☐ RSA Report***

** Not required for **High Priority Low Cost Systematic Safety Improvement Projects**
*** Required for **High Crash Location Project** Submittals and while not required for submittal, recommended for low cost countermeasures

Financial Analysis Tools

The HAT software contains a relatively easy to use form for benefit/cost analysis along with attached lists of crash reduction factors and length of service life for many common crash countermeasures. The list of Crash Reduction Factors (**CRF**) attached to the HAT software was developed specifically for the state of Indiana. However, INDOT recognizes that some possible crash countermeasures may not be defined by this resource so another acceptable CRF source is maintained by The American Association of State Highway and Transportation Officials (**AASHTO**) on-line at: http://www.transportation.org/?siteid=35&pageid=1490.

The Michiana Area Council of Governments (**MACOG**) also has a good tool for that can conduct benefit/cost analysis of proposed safety improvements. There are other software and spreadsheet applications for financial analysis and it can be done by hand.

HELPERS Program

1. Serves as the primary monitor for traffic safety performance on local roads outside of MPO areas – e.g. continued assessment of local road system to determine emerging traffic safety needs. Will work with INDOT in identifying and notifying LPA's of crash high crash locations

2. Receiving information and advising agencies outside of MPO areas regarding problem areas and opportunities to make safety improvements. Will be a point of contact for LPA's for addressing identified traffic safety needs

3. Provide agencies outside of MPO areas with specialized traffic safety technical assistance. Much like the Kentucky Circuit Rider the HELPERS Engineer will provide training and technical assistance in finding those low cost safety improvements that LPA's can make on their own.

4. Carry out and assist LPA staff in performing Road Safety Audits (RSA)'s at the request of local agencies outside of MPO areas. The HELPERS Engineer will have a list of trained volunteers to help conduct RSA's at the request of the LPA

5. Assist agencies outside of MPO areas in making application for available federal safety funding when appropriate. When the findings of an RSA indicate that federal aid may be appropriate, the HELPERS Engineer will assist the LPA in filling out the application for local HSIP funding through the web based local funding application portal. They will also forward all necessary supporting information to the Highway Safety Advisory Committee (HSAC) for review and scoring of the applications prior to the competitive funding selection process. Supporting information such as the RSA Report, HAT analysis and Project Estimate will used by the HSAC to make project funding decisions.

6. Assist agencies outside of MPO areas in conducting post construction crash analysis required for federally funded safety improvements. One of the unique requirements of federal safety funding is post construction analysis of the projects to determine the success or failure of the improvements made to improve continually the data and processes that reduce fatal and injury crashes. Three years after construction is complete, the HELPERS Engineer will assist/ advise the LPA in completing the necessary post construction analysis.

7. Functions as the Program Oversight for the portion of Highway Safety Improvement Program (HSIP) funds dedicated to agencies outside of MPO areas safety needs. Note that INDOT district LPA Coordinators will still be the primary project managers for individual local federal aid safety projects once they have been selected and programmed for development. The HELPERS Engineer will provide the LPA's with impartial advice in deciding if federal aid funds are a good fit for a particular safety need. The HELPERS program will monitor the progress of approved local HSIP projects and will work with both the HSAC and the LPA's to keep scheduled projects in line with the available HSIP funding for each fiscal year.

Glossary

23 CFR 924 -- Part 924 of Title 23, Code of Federal Regulations
23 USC 148 -- Section 148 of Title 23, United States Code
AASHTO -- The American Association of State Highway and Transportation Officials
B/C -- Benefit/Cost analysis
CRF -- Crash Reduction Factors
FARS -- Fatal Accident Reporting System
FHWA -- Federal Highway Administration
INDOT -- Indiana Department of Transportation
LPA -- Local Public Agency
LTAP -- Local Technical Assistance Program
HELPERS -- Hazard Elimination Project for Existing Roads and Streets
MPO -- Metropolitan Planning Organization
RPO -- Rural Planning Organization
ARIES -- Automated Reporting Information Exchange System
VCRS -- Vehicle Crash Records System
FMIS -- FHWA Fiscal Management Information System
HAT -- Hazard Analysis Tool (Software)
HSAC -- Highway Safety Advisory Committee
HSIP -- Highway Safety Improvement Program
HSM -- Highway Safety Manual http://safety.fhwa.dot.gov/hsm/
ICJI -- Indiana Criminal Justice Institute
Icc -- index of crash costs
MACOG -- The Michiana Area Council of Governments
MUTCD -- Manual of Uniform Traffic Control Devices
NCHRP -- National Cooperative Highway Research Program
RSA -- Road Safety Audit
SAFETEA-LU --The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SHSP -- Strategic Highway Safety Plan
TIP -- Transportation Improvement Plan
TRB -- Transportation Research Board

FY 2020 - 2024 TIP - HIGHWAY SAFETY IMPROVEMENT PROGRAM BENEFIT/COST WORKSHEET

Directions: Fill in all applicable white cells

HSIP Benefit/Cost Worksheet	Roadway/ Intersection Code(s)	Location	Study Period Begins	Study Period Ends
	Description of Proposed Work			

Crash Type / Number			Rear End	Sideswipe Same Direction	Left Turn Main Line	Right Angle	Ran off Road	Head On/ Sideswipe - Opposite Direction	Pedestrian	Other	Total
Number of crashes during study period	Fatal	F									
	Personal Injury (PI)	A									
		B									
		C									
	Property Damage	PD									
% Change in Crashes (from FHWA Desktop Reference for Crash Reduction Factors)	Fatal	F									
	Personal Injury (PI)	A									
		B									
		C									
	Property Damage	PD									
Change in Crashes (no. crashes x CRF)	Fatal	F									
	Personal Injury (PI)	A									
		B									
		C									
	Property Damage	PD									

		Type of Crash	Study Period, Change in Crashes	Annual Change in Crashes	Cost per Crash	Annual Benefit		
Year (Safety Improvement Construction)		F			$ 3,400,000			
Project Cost (excluding Right of Way)		A			$ 280,000			
Right of Way Costs (not included in B/C calculation)		B			$ 63,000			
Traffic Growth Factor	1%	C			$ 31,000		**Benefit**	$ -
Discount Rate	4.0%	PD			$ 4,600		**Cost**	$ -
Project Service Life (n)	30	Total	0.00	0.00		$ -	**B/C=**	

Crash Codes

F	Fatal
A	Incapacitating Injury
B	Evident Injury
C	Possible Injury
PD	Property Damage Only

Notes

Where more than one CRF applies, use the following formula to obtain the combined CRF:
CRF = 1 - [(1 - CRF1)(1 - CRF2)(1 - CRF3)]
from http://www.dot.state.mn.us/trafficeng/safety/hes/kentucky_report.pdf; Development of Accident Reduction Factors

See "Calculations" sheet for amortization.