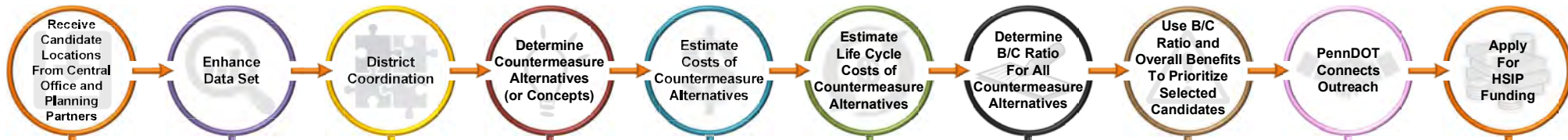


APPENDIX H – HSIP APPROVAL PROCESS



- HSM Method + Network Screening**
- Observed Crashes
 - Predicted Crashes
 - Expected Crashes
 - Excess Value

- And/Or
- Systemic Safety Improvements**
- Screen Candidate Locations
 - Crash Cluster Reports
 - Systemic Safety Crash Lists

- Data Expansion**
- Provide Expanded Location Information
 - KABCO Trend
 - Location Notes
 - Planned or Recently Completed Projects
 - Additional Comments or High-Level Potential Countermeasure Options

- Collaboration**
- Communicate and Coordinate with Planning Regions to Share Input on Network Screening and Selected Locations (Based on Engineering Judgement for Additional Data Analysis, etc.)
 - Setting Priorities

- Studies**
- Safety Study / Crash Study
 - Roadside Safety Audit (RSA)
 - Intersection Control Evaluation (ICE)

- For Discrete Sites**
- Gather CMFs
 - Determine CMFs for Recommended Countermeasures using FHWA CMF Clearinghouse

- Summarize Analysis**
- Create HSM-Based Project Profile for Each Candidate Location

- For Systemic Safety Locations**
- Identify Focus Crash Types and Screen Candidate Locations
 - Aggregate Locations for Proven Systemic Safety Countermeasures, such as:
 - High Friction Surface Treatment
 - Rumble Strips
 - Cable Median Barrier
 - Wrong-Way Ramp Entry
 - and other strategies identified in the RDIP, ISIP, SMAP, and HSM Part D

- Summarize Analysis**
- Create Systemic Safety Improvement Location Lists & Justification

- Included Costs**
- Engineering / Design
 - Right-of-Way Acquisition
 - Utility Relocation
 - Construction
 - Inspection

- Included Costs**
- Maintenance
 - Operation
 - Replacement Costs if Life Cycle is Less Than 20 Years

- Tool****
- Utilize FHWA BCA Tool or PennDOT Tools A + B

- Costs**
- Calculate Future Value of All Costs

- Benefits**
- Use CMF and KABCO Crash Data

Future Value

• $FV = PV (1 + i)^n$

Where:

FV = Future Value
 PV = Present Value
 i = Interest Rate
 n = Number of Years

- Present Findings**
- Develop Comparative Table Detailing:
 - Locations
 - Alternatives
 - B/C Ratio
 - Project Cost
 - Project Benefit

- Selection**
- Determine the Prioritization of Projects that have B/C > 1.0
 - For Systemic Safety Improvements B/C Ratio Analysis May Not Apply

- Communication**
- Ensure the District and Planning Regions are Communicating with the Municipalities Prior to any Candidate Being Included on the TIP

- Application**
- Use Data Gathered, Costs Computed, and B/C Results in Application Process

- Acronyms**
- AADT – Annual Average Daily Traffic
 - B/C – Benefit Cost Ratio
 - CMF – Crash Modification Factor
 - FHWA – Federal Highway Administration
 - HSIP – Highway Safety Improvement Program
 - HSM – Highway Safety Manual
 - ISIP – Intersection Safety Implementation Plan
 - KABCO – Injury Classification Scale
 - K – Fatal Injury
 - A – Severe Injury
 - B – Moderate Injury
 - C – Minor Injury
 - O – Property Damage Only
 - RDIP – Roadway Departure Implementation Plan
 - SMAP – Speed Management Action Plan
 - TIP – Transportation Improvement Program

* HSM Method - Until statewide network screening includes limited access segments, ramps, and intersections containing ramp terminals, alternate methods** (such as IHSDM – Interactive Highway Safety Design Model and ISATe – Enhanced Interchange Safety Analysis Tool) must be utilized to determine need at these locations. The alternate method in determining need must yield output that can translate to acceptable life cycle costs & B/C ratios.

** Note: More safety analysis tools will likely be developed and others may become obsolete.



HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP) SUPPORT

District 8-0 Process For Candidate Selection and Application

