



Health, Safety and Environmental Management Pathway: Motor Vehicle Mode

Problem-based Scenario Outline

School Site: Patterson High School

Baltimore, MD

Pathway Knowledge and Skill(s):

P06.1 Develop and maintain safety, health and environmental management systems

P06.2 Improve safety, health and environmental system performance

Performance Element(s):

- Develop historical chronology of the highway safety program with dates, events, and policies.
- Describe traffic safety health and risk management; the relationship to transportation and economics.
- Identify the Federal, State and local government traffic crash data sources whose products will be used for problem identification.
- Design the tools that will be used for data collection to identify the highway safety problem and the evaluation of the project.
- Decide on the type and scope of analysis that will be performed on the collected data.
- Decide what traffic safety countermeasure is appropriate for the traffic safety problem that has been identified.
- Develop a traffic safety project (s) (Report) and submit it for funding of the project.
- Identify Federal, State and local government crash data sources for problem Identification use.
- Develop a cost efficient traffic safety program plan for your project(s).
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- Identify and develop tools illustrating careers and opportunities in transportation.

Related Knowledge and Skills (Minimum Requirements)

- Explain and identify the Federal government traffic safety priority areas.

- Describe the organizational structure of the National Highway Traffic Safety Administration and the role of the regional offices as a customer service unit and partner to States.
- Describe the key elements of exposure in risk management and how to determine crash severity.
- Describe the major measures, types of data files, and tables that are used to conduct traffic safety problem identification.
- Describe the two types of traffic safety problems and the two types of evacuation applied.
- Describe and explain the four key elements necessary to have a comprehensive traffic safety project.
- Describe the process and how the Geographic Information System (GIS) as a form of information technology is improving traffic safety.
- Utilize traffic records files containing annual national and state motor vehicle crash data to identify potential traffic safety problems.
- Develop countermeasures, projects, programs and evaluation designs as solutions for priority areas assigned.
- Produce plans consistent with Federal Laws.

Title: TRAFFIC SAFETY PROBLEMS AND PROGRAM DEVELOPMENT

Completion Time: 4 weeks

Problem Statement: You are Analyst and Project Manager for a Safe Communities Program and there are complaints of increased motor vehicle crashes on Kane Street. The severity of the crashes, who, what, how, and when are all causation factors you must determine. Apply the skills learned as a traffic safety risk manager; analyze problems, and develop a plan demonstrating effective use of resources that can be implemented. Your plan is due in four weeks.

Occupations and Related Job Titles (*Examples*):

- **NHTSA Baltimore Region III Office**
- **NHTSA Washington D.C.**
 - ◆ State and Community Programs Section (NSC)
 - ◆ Traffic Safety Programs (TSP)
- **Maryland State Highway Administration (SHA)**
 - ◆ Traffic Safety Division (TSD)
 - ◆ Records Management (RM)

Occupations and Related Job Titles:

- Data Analyst
- Information Management Specialist
- Project Director
- Program Coordinator
- >Program Manager
- Fiscal Manager
- Traffic Manager

Sites:

TSP, SHA
TSP, SHA/TSD
SHA/TSD
SHA/RM/TSD
NHTSA/R3
NHTSA/NSC, TSD
SHA

Business/Industry/Government Partner(s):

U.S. Department of Transportation
National Highway Traffic Safety Administration (NHTSA)
10 South Howard Street, Suite 6700
Baltimore, MD 21201

Students:

- Reference source detailing highway safety's history and governing policies
- Written guides to conduct problem identification, produce plans, assess other programs, understand Federal priorities,
and universal application regardless of jurisdiction
- Written Reports
- Oral presentation

Process:

- Students identifying data sources to avoid contamination
- Students applying analytical methods to solve traffic safety problems

- Students applying technical writing skills to produce project proposals, plans, and evaluation reports
- Students completing work task in four (4) weeks

Required Materials and Resources:

- Computers
 - ◆ Word processing and presentation software
- Resource Directories
- Student Mentor Guide
- Fatal Analysis Data Base
- Traffic Safety Facts
- Severity Index Tables
- State Crash Data
- State Plans

- National and State Crash Data (most recent)
 - ◆ Student/ Mentor Guide
 - ◆ Crash Severity Index and Economic Cost
 - ◆ State Performance Plans

- U.S. DOT Directory and Organizational Chart
 - ◆ Computer Internet Access
 - ◆ Hand Calculator
 - ◆ Other

School Costs and Resources Required

- Transportation (Bus) to Work Sites
- Computer and Internet/Web Access for 5-6 Teams
- Electronic Media (TV, VCR, Overhead, Xerox)

Suggested Assessment Approaches:

- Peer and Self Assessment
- Rubrics
- Checklist

- Portfolios
- Learning logs
- Teacher Observations
- Simulations

uster Foundation Knowledge and Skills:

Related Academic Skills:

Additional Standards from Maryland Department of Education Content Standards:

Reading (Evaluation of Information text)

1.12.6 (2) Critique process, validity, and logic of arguments advanced in public documents.

Writing (Persuasive)

3.12.7 (1) Write to persuade an intended audience by selecting a form that structures ideas, supports logic, clarifies and defends positions with precise evidence, and establishes a strategy to take action.

Speaking (Oral Presentations)

6.12.2 9 (3) Speak in a variety of situations choosing an organizational pattern appropriate to convey a message or theme.

Scientific Inquiry (Connecting Technologies)

1.12.7 Collect, organize and display data in multiple ways that fit the context using appropriate instruments to effectively convey the information (e.g., calculators, spreadsheets,, and data bases and graphing programs).

1.12.13 Critical Thinking - analyze the adequacy of the supporting evidence used to form conclusions, devise a plan, or solve a practical problem.

Social Studies Skills (Geography, Economics and Political Systems)

4.3.12.7 Evaluate the importance of transportation and communication as factors contributing to economic development.

5.1.12.3 Evaluate how government must weigh anticipated marginal cost and marginal benefits of alternatives when making decisions about issues of limited economic resources.

6.1.12.1 Analyze the relationship between governmental **authority** and individual liberty.

6.3.12.5 Describe the purposes and functions of independent regulatory agencies.

Mathematics (Knowledge of Algebra, Patterns and Functions)

1.12.1b Represent patterns, and/or functional relationships in a table, as a graph, and/or by mathematical expression.

4.12.3a Make informed decisions and predictions based upon the results of simulations and data from research.

4.12.4 Use the measures of central tendency and/or variability (mean, median, mode, range, interquartile range, quartile) to make informed conclusions.