100 West Washington Street, Suite 1101 | Hagerstown, MD 21740-4735 | P: 240.313.2200 | F: 240.313.2201
WWW.WASHCO-MD.NET

**BOARD OF COUNTY COMMISSIONERS**
**August 22, 2017**
**Agenda**

09:00 A.M. INVOCATION AND PLEDGE OF ALLEGIANCE
CALL TO ORDER, *President Terry L. Baker*
APPROVAL OF MINUTES –AUGUST 8, 2017

09:05 A.M. COMMISSIONERS' REPORTS AND COMMENTS

09:10 A.M. REPORTS FROM COUNTY STAFF

09:15 A.M. CITIZENS PARTICIPATION

09:20 A.M. DISABLED AMERICAN VETERANS ORGANIZATION - *"FORGET-ME-NOT" MONTH" PROCLAMATION (SEPTEMBER 2017) - Jr Arnold*

09:25 A.M. PROGRAM OPEN SPACE LAND PRESERVATION EASEMENTS – *Eric Seifarth, Rural Preservation Administrator, Planning and Zoning*

09:30 A.M. COMMUNITY ORGANIZATION FUNDING, SERVICE PRIORITY AREAS FOR FISCAL YEAR 2019 – *Jim Hovis, Director, Office of Community Grant Management*

09:45 A.M. HOTEL RENTAL TAX REQUEST; WASHINGTON COUNTY MUSEUM OF FINE ARTS, HVAC REPLACEMENT – *Jim Hovis, Director, Office of Community Grant Management*

09:50 A.M. WASHINGTON COUNTY STRATEGIC HIGHWAY SAFETY PLAN – *Sheriff Doug Mullendore and Merle Saville, Traffic Engineering, Engineering Department*

09:55 A.M. 2017 HOUSING BOND ALLOCATION TRANSFER – *Stephen Goodrich, Director, Department of Planning and Zoning*

10:00 A.M. INTERGOVERNMENTAL COOPERATIVE PURCHASE (PUR-1358) FOR THE HIGHWAY DEPARTMENT OF THREE (3) DUMP TRUCKS - *Rick Curry, Director, Purchasing Department and Ed Plank, Director, Highway Department*

10:05 A.M. REQUEST TO CONVEY CERTAIN REAL PROPERTY - *Susan Small, Real Property Administrator, Engineering Department*

10:10 A.M. CLOSED SESSION

*(To discuss the appointment, employment, assignment, promotion, discipline, demotion, compensation, removal, resignation, or performance evaluation of appointees, employees, or officials over whom this public body has jurisdiction; or any other personnel matter that affects one or more specific individuals; to consult with counsel to obtain legal advice on a legal matter; and to consult with staff, consultants, or other individuals about pending or potential litigation.)*

11:00 A.M. *Depart For 5 South Clifton Drive, Williamsport, MD*

11:30 A.M. MICHAEL G. CALLAS MEMORIAL – NEW EDUCATOR'S RECEPTION AND LUNCHEON
Location: Williamsport High School, 5 S. Clifton Drive, Williamsport, MD

Board of County Commissioners of Washington County, Maryland

Agenda Report Form

Open Session Item

**SUBJECT:** Program Open Space (POS) Land Preservation Easement Projects

**PRESENTATION DATE:** August 22, 2017

**PRESENTATION BY:** Eric Seifarth, Rural Preservation Administrator

**RECOMMENDED MOTION:** Move to approve Washington County's participation in POS acquisition of land preservation easements to be held jointly by the Department of Natural Resources (DNR) and The Board of County Commissioners of Washington County, Maryland.

**REPORT-IN-BRIEF:** Funds for POS Land Preservation easements have been restored by the Maryland General Assembly. The easements are funded 100% through DNR to be used for permanent land preservation in counties willing to participate. Currently, Washington County Land Preservation staff is working with DNR to evaluate and purchase easements on 3 properties totaling 560 acres with an estimated easement value of approximately $1.5 million.

**DISCUSSION:** Even though all costs are being paid by DNR, in order for County property owners to be eligible the Board of County Commissioners of Washington County, Maryland must co-hold the easements. Land Preservation staff has met with the County Attorney to review the County's responsibilities as an easement co-holder. The actual easements are very similar to Rural Legacy projects protecting agricultural, environmental and historic features.

**FISCAL IMPACT:** There are recurring expenses for the inspections of the easement properties by Land Preservation staff. Time required for inspections is 6 hours per year or $225.00 per year and the cost is covered by the Department of Planning and Zoning budget.

**CONCURRENCES:** Department of Natural Resources.

**ALTERNATIVES:** Opt out of the POS easement purchase program.

**ATTACHMENTS:** None.

**AUDIO/VISUAL NEEDS:** N/A

Board of County Commissioners of Washington County, Maryland

Agenda Report Form

**Open Session Item**

**SUBJECT:** Community Organization Funding- Service Priorities Areas for Fiscal Year 2019

**PRESENTATION DATE:** August 22, 2017

**PRESENTATION BY:** James B. Hovis, Director, Office of Community Grant Management

**RECOMMENDED MOTION:** Move to approve the Community Organization Funding Service Priority Areas and their respective available funding amounts as presented (or amended).

**REPORT-IN-BRIEF:** The Community Organization Funding Committee is preparing for the fiscal year 2019 application and review process. As agreed upon, the Board of County Commissioners shall annually determine and approve the service priority areas eligible to receive funding consideration. The Board shall also set or approve the total available funding that should be dedicated to each established service priority area.

**DISCUSSION:** Historically the Board has funded six (6) service priority areas which are: Arts & Culture, Domestic Violence, Families and Children, Recreation, Seniors and Other. These service priority areas have encompassed and included all applications received and have not excluded an organization from making application for funding.

For the purposes of the Committees fiscal year 2019 considerations, Washington County's Chief Financial Officer has indicated $1,700,000 is available for distribution. This total is subject to adjustment as the fiscal year 2019 budget is discussed.

It is the recommendation of the County's CFO and Director of the Office of Community Grant Management that the amount of funding made available for each respective service priority be set as indicated below:

| Service Priority Area | Funding Available | Percent of Available Funds |
|---|---|---|
| Arts & Culture | $227,810 | 13.4% |
| Domestic Violence | $306,900 | 18.0% |
| Families & Children | $255,380 | 15.0% |
| Recreation | $27,000 | 1.6% |
| Seniors | $873,110 | 51.4% |
| Other | $9,800 | 0.6% |
| Total | $1,700,000 | 100% |

As agreed upon by the Board, the Committee does have the latitude to move ten (10) percent of the approved amounts from one service priority to another, but every year the amount of funding available for a specific service priority area will return to the approved base figure as set by the Board.

**FISCAL IMPACT:** The fiscal impact of Community Organization Funding is dependent upon funding decisions made by the Board during the annual budgetary process. Any decisions made as a result of this discussion will have no immediate fiscal impact.

**CONCURRENCES:** Chief Financial Officer, Washington County, Maryland

**ALTERNATIVES:** The Board may amend service priorities and funding amounts as deemed appropriate

**ATTACHMENTS:** N/A

**AUDIO/VISUAL TO BE USED:** N/A

Board of County Commissioners of Washington County, Maryland

Agenda Report Form

Open Session Item

**SUBJECT:** Hotel Rental Tax Funding Request, Washington County Museum of Fine Arts, HVAC Replacement

**PRESENTATION DATE:** August 22, 2017

**PRESENTATION BY:** James Hovis, Director, Office of Community Grant Management, Rebecca Massie-Lane, Director WCMFA, Al Martin, President, WCMFA, John Schnebly, Past-President, WCMFA

**RECOMMENDED MOTION:** Move to approve the request for Hotel Rental Tax funding from the Washington County Museum of Fine Arts in the amount of $_____, for direct expenses associated with HVAC Energy Efficiency Improvements.

**REPORT-IN-BRIEF:** The Washington County Museum of Fine Arts (WCMFA) has submitted a request for Hotel Rental Tax funding to support the facility's HVAC replacement. The HVAC upgrades and replacement are projected to cost $1,096,575. The amount of funding requested for this project is $350,000, paid in 5-annual disbursements of $70,000.

**DISCUSSION:** The WCMFA is an economic driver for Hagerstown and Washington County. The museum's zip code collecting reveals that 21.3% of visitors originate beyond a 50 mile radius of the museum with a yearly $1,328,470 economic impact (State & Local Tourism Statistics.) Over the past five years, the WCMFA has received visits from all 50 States, the District of Columbia, and 51 Foreign Countries; 52.0% of museum visitors are from Washington County. Using the museum's average attendance of the last ten fiscal years (47,545), the Museum predicts it will receive 494,460 County visitors during the next 20 years of the newly installed HVAC system. The museum's goal is to increase visitors originating beyond 50 miles to 22% creating a yearly economic impact of $1,495,766 (+ $167,296) and totaling $29,915,320 over the next 20 years.

The replacement of the HVAC system is the top capital priority for WCMFA. The expectation is that the work will take place by May 2018. The current HVAC systems in the Washington County Museum of Fine Arts are aging, failing, and provide inadequate controls. Problems facing the WCMFA include HVAC failures in galleries, art storage, and office areas, lack of redundancy, lack of humidity control, inability to maintain museum climate standards, and concerns for the threat this poses to collections stewardship. The museum's national accreditation rests upon its ability to meet Best Practices, including environmental conditions affecting care of collections. During the past five years, the trustees and staff have raised a total of $749,102 for Capital Projects. These have included two roof replacements, historic skylights

repair, refurbishing two major galleries, improving the North Entry Plaza and upgrading the catering kitchen. The WCMFA has been accredited by the American Alliance of Museums since 1976, and was re-accredited in 2016; only 3.1% of American museums are accredited.

The Board of Trustees, as fiduciaries of the building, the collections, and the funds of the museum, engaged an Energy & Systems Audit in 2015 from Kibart Engineering. As a result of the audit recommendations, our independent subject matter experts are of the opinion that the WCMFA can go from a whole-building heating efficiency of 68% to 90%; electric use is expected to decrease by 54% as a result of the HVAC upgrade. In addition, natural gas consumption is anticipated to be reduced by 20%. The Systems Audit Report is the basis for prioritizing, budgeting, and planning for energy efficiency cost improvements, maintenance and equipment replacement savings, improved conditions for the care and preservation of the magnificent art collections, and better conditions for the public. This Audit Report was followed by a detailed study and cost estimate outlining a comprehensive replacement of the HVAC system.

The total HVAC replacement budget is projected at $1,096,575. The WCMFA has secured funding from a Maryland Energy Administration grant in the amount of $120,413, is seeking funding from Private Foundations in the amount of $412,335 and $213,827 from a combination of sources including WCMFA self-funding, City of Hagerstown, in-kind and private donations.

The project budget includes $515,824 for equipment, $363,723 for labor and $217,028 for materials, supplies, permits, sub-contracts and consultant fees.

This event meets all 7 of the Board of County Commissioner's goals and criteria for the use of Hotel Rental Tax Funds. There are no issues of outstanding obligations to the County that would prevent the WCMFA from receiving funding. It is the position of the Office of Community Grant Management that this application may be approved in an amount determined to be appropriate by the Board of County Commissioners.

**FISCAL IMPACT:** The Hotel Rental Tax Fund will be reduced by the amount of this award. If annual distributions are awarded, the annual award would impact the fund in the same fiscal year as the distribution.

**CONCURRENCES:** N/A

**ALTERNATIVES:** Deny the request for Hotel Rental Tax Funding.

**ATTACHMENTS:** Hotel Rental Tax Funding Application with attachments.

**AUDIO/VISUAL NEEDS: N/A**

# Washington County, Maryland
# Hotel Rental Tax Funding
# Grant Application

100 West Washington Street
Room 2200
Hagerstown, Maryland 21740
240-313-2040

Organization/Agency: Washington County Museum of Fine Arts
E-mail Address: rmlane@wcmfa.org

Address: P.O. Box 423, 401 Museum Drive, Hagerstown, MD 21741

Contact Person: Rebecca Massie Lane
Title: Director

Phone Number: (301) 739-5727
Fax Number: (301) 745-3741

Tax ID/Federal ID#: 52-0607950
◉ Capital Request ○ Operating Request

Project Classification: ○ Tourism/Attraction ○ Economic Development ◉ Cultural ○ Recreation

Project Name: Washington County Museum of Fine Arts (WCMFA) Building Energy Efficiency Improvements

Project Start Date: October 2017
Project End Date: June 2018

Project Justification and Economic Benefit/Impact to the Visitor Industry, if Applicable

The WCMFA respectfully requests support from the Washington County Hotel Motel tax in the amount of $350,000.00, in five annual installments of $70,000.00 to assist with a major HVAC system upgrade. The replacement of the HVAC system is now the top capital priority for WCMFA. The expectation is that the work will take place by May 2018. The current HVAC systems in the Washington County Museum of Fine Arts are aging, failing, and provide inadequate controls. Problems facing the WCMFA include HVAC failures in galleries, art storage, and office areas, lack of redundancy, lack of humidity control, inability to maintain museum climate standards, and concerns for the threat this poses to collections stewardship. The museum's national accreditation rests upon its ability to meet Best Practices, including environmental conditions affecting care of collections. During the past five years, the trustees and staff have raised a total of $749,102 for Capital Projects. These have included two roof replacements, historic skylights repair, refurbishing two major galleries, improving the North Entry Plaza and upgrading the catering kitchen. The WCMFA has been accredited by the American Alliance of Museums since 1976, and was re-accredited in 2016; only 3.1% of American museums are accredited.

Anticipated Visitor Attendance and Impact on Hotel Rental Occupancy, if Applicable

The WCMFA is an economic driver for the region. The museum's zip code collecting reveals that 21.3% of visitors originate beyond a 50 mile radius of the museum with a yearly $1,328,470 economic impact (State & Local Tourism Statistics.) Over the past five years, the WCMFA has received visits from all 50 States, the District of Columbia, and 51 Foreign Countries; 52.0% of museum visitors are from Washington County. Using the museum's average attendance of the last ten fiscal years (47,545), the Museum predicts it will receive 494,460 County visitors during the next 20 years of the newly installed HVAC system. The museum's goal is to increase visitors originating beyond 50 miles to 22% creating a yearly economic impact of $1,495,766 (+ $167,296) and totaling $29,915,320 over the next 20 years.

Narrative Description of Project: Include purpose of project, outline of project procedures, intended results of project or any additional comments that support the need for project and/or merit as an event or activity designed to promote Washington County, Maryland.

The WCMFA has provided a vibrant place for the presentation and exploration of art of lasting quality for the benefit of a diverse public for more than 85 years. Hagerstown native Anna Brugh Singer and her husband William H. Singer, Jr., established the WCMFA in 1931 with the proviso that the museum adhere to the highest standards of collecting, that admission be free in perpetuity, and that the museum provide an active program of public art education. Their generosity, and that of subsequent collectors, has resulted in a remarkable collection of some 6500 works, with particular strength in 18th–20th Century American Art. Over 80 specialized art classes are offered yearly for Children and Adults. Tours, Educational Programming, Outreach, Bus Trips, Concerts & Community Programming accounted for 33% of total Museum attendance. The 31,150 square foot building is on the Maryland Historic Trust. WCMFA requests support for comprehensive modifications of its HVAC system. (Attachment B)

The Board of Trustees, as fiduciaries of the building, the collections, and the funds of the museum, engaged an Energy & Systems Audit in 2015 from Kibart Engineering. (Attachment A) As a result of the audit recommendations, our independent subject matter experts are of the opinion that the WCMFA can go from a whole-building heating efficiency of 68% to 90%; electric use is expected to decrease by 54% as a result of the HVAC upgrade. In addition, natural gas consumption is anticipated to be reduced by 20%. The Systems Audit Report is the basis for prioritizing, budgeting, and planning for energy efficiency cost improvements, maintenance and equipment replacement savings, improved conditions for the care and preservation of the magnificent art collections, and better conditions for the public. This Audit Report was followed by a detailed study and cost estimate outlining a comprehensive replacement of the HVAC system.

The current HVAC systems are aging, failing, and providing inadequate controls. Problems facing the WCMFA include HVAC outages in galleries, art storage, and public areas, lack of redundancy, lack of humidity control, inability to maintain museum climate standards, and concerns for the threat this poses to collections stewardship. The museum's national accreditation and its reputation rest upon its ability to meet Best Practices, including environmental conditions affecting care of collections. The building is currently served by two air handling units. The Carrier Unit serves the 1930/1949 buildings. The York Unit serves the 1994 building. Each unit is equipped with two condensers; only one in each unit is functioning. As a result, there has been no redundancy in the York and Carrier systems, leaving WCMFA vulnerable to unacceptable fluctuations in temperature and humidity. Heating, cooling and humidity spikes caused by outages are damaging to the works of art. Such fluctuations cause expansion and contraction of works of art and increase chemical reactions that gradually break down and damage the art. Higher humidity causes corrosion in metals and mold growth on organic materials.

The Carrier unit for the 1930/1940 buildings serves the greatest number of exhibition areas including the Museum's valuable art collections in the Baer, Fulton, Mason, Schreiber, Singer, Smith, and Thieblaut Galleries, valuable loaned exhibitions in the Bowman Gallery and the art collections storage vaults. During the long-term outage of summer 2015 (a week without the Carrier unit), these galleries reached an unacceptable 80 degrees. The York unit serves the 1994 building which includes the Groh Gallery. In May 2016, the York unit experienced an extended outage with similar high temperatures and humidity levels. The 2011 AAON unit serves the Atrium. The Museum's reports from its recording hygro-thermographs recorded the fluctuations. The fluctuations in relative humidity were particularly alarming in the painting storage vault. In both the 2015 and 2016 outages, the ordering of parts and repairs took multiple days, causing the interior temperatures to reach 80 degrees, 10 degrees above the conservation standards for museums. In December 2016 and March 2017, the museum experienced boiler failures, resulting in repairs amounting to over $12,000. Mechanical contractors assessed the situation and reported to the museum in called meetings in 2015 & 2016.

The Engineers and Mechanical Contractor who collaborated on the detailed HVAC replacement study have recommended modifying the HVAC System into a Variable Air Volume (VAV) system with Reheat. This system is recommended because it will give the Museum a more consistent and controllable HVAC System, stabilizing the humidification, establishing a level of redundancy, and resulting in significant energy savings. There is a special design criteria for museums that requires indoor conditioned space of the public areas, collections storage, and exhibition areas to have temperature, relative humidity, and airborne pollutant controls in compliance with ASHRAE Chapter 23. Cost-effective energy, security and air/humidity controls are 24/7, 365 mission-critical factors for the Museum. The General Scope of Work will include Demolition, Adaptation, and New Systems to be completed by end of spring 2018.

Over its long history, the WCMFA has developed numerous programmatic and financial realtionships with businesses, organizations, and individuals throughout the four state region such as the Washington County Public Schools, City of Hagerstown and Washington County Governments, CVB's (Washington & Frederick, MD, Franklin County, PA, Jefferson County, WV), Garden Clubs, Rotary, assisted living communities, and service and civic groups. Local City and County governments support museum operations (15% of budget) through a founding agreement with Anna & William Singer & Museum Trustees. The Maryland State Arts Council (MSAC) supports operations (4%) through its operating grant program. Partnerships include MSAC Touring Artists, St. Mary Catholic School, ARC, The Downtown Movement--Hagerstown, and the Hagerstown A&E District. The WCMFA partners with City events including: Blues Fest, Holiday Tree Lighting, and Fall Fest. The Museum partners with local & regional artists for the Annual Juried CVA & CVP exhibitions and art educators who teach museum art classes. WCMFA provides citizens of the region, museum members, volunteers, artists, area collectors, educators, students, and scholars worldwide access to its remarkable collections, changing exhibitions, and programs.

# Total Project Budget

| | | |
|---|---|---|
| A. | Amount of Hotel Rental Tax Grant Funding Requested | $350,000.00 |
| B. | List Other Funding Sources and Their Respective Amounts | |
| Source: | Maryland Energy Administration Grant | $120,413.00 |
| Source: | Private Foundations | $412,335.00 |
| Source: | City of Hagerstown, WCMFA Funds, In-Kind, Private Donations | $213,827.00 |
| C. | Total Project/Event Funding (A + B) | $1,096,575.00 |

**Itemize your total project budget into the appropriate classifications:**

A. Tourism Attraction (Be specific in expense break down):

| | |
|---|---|
| | |
| | |
| | |

B. Economic Development Enhancement (Be specific in expense breakdown):

| | |
|---|---|
| | |
| | |
| | |

C. Cultural Projects (Be specific in expense breakdown):

| | |
|---|---|
| Salaries & Wages | $363,723.00 |
| Equipment | $515,824.00 |
| Materials & Supplies, Documentation, Subcontracts, Contingency, Consultant | $217,028.00 |

D. Recreational Projects (Be specific in expense breakdown):

| | |
|---|---|
| | |
| | |
| | |

| | |
|---|---|
| **Total Project Budget** | $1,096,575.00 |

Certification:

We certify the information contained in this application is complete, accurate and fully discloses the scope and intent of our request for funding from the Hotel Rental Tax Fund. We agree to comply with the County's requests for information regarding the use of awarded funds and to provide access to accounting records related to these funds.

We acknowledge that if expenditures of funds is approved, such approval will be for line-item-by-line-item expenditures, which must be adhered to within the maximum 10% line item deviation.

We further acknowledge that any deviations beyond 10% allowable amount will require us to submit a program amendment which will have to be approved by the Office of Community Grant Management prior to any further expenditures.

By signing this application, I/we accept and agree to be bound by the terms and conditions of Hotel Rental Tax Regulations as administered by the Washington County Commissioners in compliance with current State laws.

Signature: Rebecca Massie Lane Digitally signed by Rebecca Massie Lane Date: 2017.07.21 15:56:27 -04'00' Date: Jul 21, 2017

Applicant/Organization: Washington County Museum of Fine Arts

Recommended by: James Hovis Digitally signed by James Hovis Date: 2017.07.25 09:57:12 -04'00' Date: Jul 25, 2017

Director, Office of Community Grant Management

(●) Approve ( ) Denied

Comments: The requester is qualified to receive funding and has no outstanding obligations to the County. The project meets all 7 program goals. Estimates for work are included. Work will be competitively bid once funding for the project has been identified. Funding requested - $350K ($70,000 per year for 5-years). Decision deferred to the County Commissioners.

Approved By: [signature] Date: 8/1/17

County Administrator

(X) Approved ( ) Denied

Comments:

For Requests over $25,000

Approved By: Date

President, Board of County Commissioners

( ) Approved ( ) Denied

Return Application To:
Washington County Office of Community Grant Management
100 West Washington Street Room 2200
Hagerstown, Maryland 21740
240-313-2040

**FINAL REPORT**

# Engineering Audit of the Existing Mechanical/Plumbing/Electrical Systems

## Washington County Museum of Fine Arts (WCMFA)

**Prepared by:**

KIBART
CONSULTING ENGINEERS
901 Dulaney Valley Road, Suite 301
Towson, MD 21204
Phone 410-494-1111 Fax 410-494-1112

**WO # 13043.01**
**May 27, 2015**

## TABLE OF CONTENTS

# I. SCOPE OF WORK AND EXECUTIVE SUMMARY

## A. SCOPE OF WORK

1. MECHANICAL AND PLUMBING

    a. The main purpose of the mechanical portion of this narrative is to provide the Owner an evaluation of the existing heating, ventilating and air conditioning (HVAC) and plumbing systems in the building, including providing recommendations and associated construction costs.

2. ELECTRICAL

    a. The main purpose of the electrical portion of this narrative is to provide the Owner an evaluation of the electrical systems in the building. This evaluation will cover the fire alarm system, life safety systems, electrical distribution systems and lighting systems.

## B. EXECUTIVE SUMMARY

1. MECHANICAL

    a. In general, the mechanical systems appear to be in working order with the exception of the system serving the Cushwa Courtyard. Various systems would benefit from life cycle replacement and/or upgrade as detailed below.

2. ELECTRICAL

    a. Overall, the electrical systems appear to be well maintained and in good condition.
        1) The fire alarm system still has issues that have not been resolved. The devices still function, but the previous system issues remain and need to be addressed.
        2) The security system has several deficiencies that need addressing.
        3) The lighting system would benefit from a system overhaul, as the existing system is a combination of old lighting technologies, and the controls systems do not meet current energy codes.

## II. MECHANICAL

### A. RECORD DOCUMENTATION:

In general, the collected information and drawings are applicable for the maintenance of the facility. The following pertinent information/material is missing and should be replaced:

1. Submittal data for the Multi-Zone AHU installed in 1981.

2. Submittal data for the Electric Steam Humidifier installed in 1981.

3. Submittal data for the Heating Water Boiler.

4. Submittal data for the AHU and Return Fan installed in 1993.

5. Submittal data for the Electric Steam Humidifier installed in 1993.

6. Submittal data for the VAV terminal boxes and reheat coils installed in 1993.

7. System balancing reports for air and water.

### B. HVAC DESIGN CONDITIONS:

The mechanical systems serving Museums and Archive buildings must meet the needs for both human occupancy (ASHRAE 55) and preserve the health and safety of the collections. As recommended by ASHRAE - Chapter 23, the indoor design conditions for a museum must have provisions to control the temperature, relative humidity, and airborne pollutants in spaces that collections are displayed or stored. The existing HVAC system has the main components required to meet the recommendations of ASRAE, however some improvements (described below) could be made. In addition, the indoor conditions should be maintained at all times in spaces that collections are displayed or stored. The indoor design conditions for a museum located in Hagerstown, MD such as WCMFA is as follows:

1. Outdoor Air Temperature(All Areas):

   Summer: 95$^{o}$F Dry Bulb/78$^{o}$F Wet Bulb

   Winter: 11$^{o}$F Dry Bulb

2. Indoor Air Temperatures(All Occupied Areas Requiring Heating and Cooling):

   Summer: 70°F Dry Bulb, with a maximum daily fluctuation of ±5°F

   Winter: 70°F Dry Bulb, with a maximum daily fluctuation of ±5°F

3. Indoor Air Relative Humidity(All Occupied Areas Requiring Heating and Cooling):

   Summer: 50% RH, with a maximum daily fluctuation of ±5%

   Winter: 40% RH, with a maximum daily fluctuation of ±5%

4. Based on scheduled outside air quantities as shown on as-built drawings, the scheduled amounts are adequate to meet ventilation rates required by ASHRAE 62.1. However, system operating modifications made to the HVAC system serving the Cushwa Courtyard will cause the space to be under ventilated and would not meet required ventilation rates during high occupancy special events such as wedding receptions

5. Based on the information found on the building's construction drawings, the building's thermal envelope appears to meet the energy efficiency requirements of the current code.

6. The existing HVAC system serving the building is equipped with the primary components suitable for its intended function. The existing system capacity appears to accommodate the thermal load requirements. However, the space humidity appears to fluctuate beyond the recommended tolerances noted above. Space humidity fluctuations are caused by many contributing factors such as system controllability, lack of a vapor barrier in the building envelope, pedestrian traffic infiltration, etc.

7. The existing elevator machine room is currently exhausted. Current code would require the installation of a dedicated cooling unit to serve the EMR.

## C. EXISTING CONDITIONS

1. WCMFA was primarily constructed in four (4) phases:

   a. PHASE 1: The original building was constructed in 1930. The current names of the areas included in the original construction are as follows:
      - Basement (Boiler Room, storage and miscellaneous rooms)

- Ground Floor (Diana, Kerstein, Schreiber, Smith, Mason, Thieblot, Rinehart and Baer Galleries)

b. PHASE 2: The building was expanded in 1949. The current names of the areas included in the expansion are as follows:
   - Basement (Mechanical Room, Vault, storage and miscellaneous rooms)
   - Ground Floor (Bowman, Fulton and Singer Memorial Gallery)

c. PHASE 3: The building was further expanded in 1994. The current names of the areas included in the expansion are as follows:
   - Ground Floor (Lobby and Gift Shop, Offices, Library, American and Contemporary Art Corridors, Browne Education Room and Groh Gallery)
   - Penthouse (space to run ductwork and piping)
   - Cushwa Courtyard

d. PHASE 4: The Cushwa Courtyard was enclosed with a glass roof in 2011.

2. There are three existing HVAC systems that serve the building. Each system is dedicated to serve one of the following areas of the building.

   a. Original 1930 building construction and 1949 building expansion

   b. 1994 building expansion

   c. Cushwa Courtyard

3. ORIGINAL 1930 BUILDING CONSTRUCTION AND 1949 BUILDING EXPANSION

   a. The area is served by an indoor air handling unit (AHU), return air fan, and an outdoor air cooled condensing unit (ACCU).
      1) The AHU is a constant volume multi-zone (7 zones) unit that has direct expansion (DX) cooling and hot water heating coils.
      2) The AHU and return air fan were manufactured in 1981 based on the serial numbers and installed soon after, replacing the original HVAC equipment installed in 1930 and 1949. The units are located in the Boiler Room in the basement of the original 1930 portion of the building. The ACCU is located on grade. There

were no record drawings of the installation available to Kibart.

3) As part of the work done during the 1994 building expansion, the associated ductwork was modified and the AHU was rebalanced to 17,835 CFM supply air (SA) and 2500 CFM OA.

4) Although the AHU, return air fan and the ACCU were observed to be in good operating condition and appear to have been well maintained, the units are over 33 years old and have outlived its normal life expectancy of 30 years.

b. An electric steam humidifier (45 kW) installed in 1981, located next to the existing AHU provides humidification to the seven AHU zones via duct mounted steam dispersion tubes, valving and distribution piping. Space humidistats for each zone provide control of humidity levels. Although the unit seems to be in good operating condition based on conversations with maintenance personnel and appears to have been well maintained, the unit is over 33 years old and has outlived its normal life expectancy of 15 years. The distribution piping and valving have been maintained and repaired as needed over the years.

4. 1994 BUILDING EXPANSION

a. The area is served by an indoor AHU, return fan and an outdoor ACCU.

1) The AHU is a 12,000 CFM variable air volume (VAV) unit that has a direct expansion (DX) cooling coil. The unit has a supply fan with variable inlet guide vanes. Return air is via an inline centrifugal return fan with variable inlet guide vanes.

2) The AHU, return fan and ACCU were installed during the 1994 building expansion. The AHU and return fan are located in the Mechanical Room in the basement of the building portion built during the 1947 building expansion. The ACCU is located on grade.

3) The AHU, return fan and the ACCU were observed to be in good operating condition and confirmed with conversations with maintenance personnel. At this time, since the units are only 21 years old with a normal life expectancy of 30 years, replacement of the units are not recommended at this time.

b. An electronic steam humidifier (3.8 kW) installed in 1994 and located in the Mechanical Room provides humidification via duct mounted steam dispersion tubes and distribution piping.

A humidity sensor mounted in the return air duct provides control of the humidity levels. At the time of Kibart's site visit, the unit was being repaired.

c. The associated supply and return air ductwork, variable air volume (VAV) boxes with heating coils and heating water piping are located in the mechanical penthouse. Although the equipment are over 20 years old with a normal life expectancy of 25 years, they were observed to be in good operating condition.

5. CUSHWA COURTYARD

a. The area is served by an indoor AHU, an energy recovery unit (ERU) and an outdoor ACCU.
   1) The AHU is a 9445 CFM constant volume unit that has direct expansion (DX) cooling and hot water heating coils.
   2) The ERU was originally designed to exhaust 3,450 CFM and provide 3,450 CFM of outside air.
   3) An electric steam humidifier provides humidification via duct mounted steam dispersion tubes and distribution piping. A space mounted humidity sensor provides control of the humidity levels. It was mentioned by maintenance personnel that they have never seen the unit operate. This may be due to the ERV being able to transfer latent heat and the other existing building humidifiers that are contributing factors. .
   4) The AHU, ERU and humidifier are located in the penthouse of the 1994 building expansion. The ACCU is located on grade.
   5) Since 2011 when the system was originally installed by Beaver Mechanical Contractors Inc (BMCI), there have been numerous problems with the operation of the system according to the building's maintenance personnel. In May of 2013, Kibart performed a commissioning field investigation and issued a report that identified construction deficiencies for conformance with the system design. In the Fall of 2013, BMCI was hired to incorporate Kibart's recommendations. Based on BMCI's final report to the Owner, which included Testing and Balancing, the system was operating as designed.
   6) According to Miller and Anderson, the outside HVAC maintenance company contracted by WCMFA, there was once again an issue with the system. In January, 2014, there was an issue with a freezestat tripping in

the AHU. The AHU was manually reset and in an effort to prevent the freezestat from tripping again, Miller and Anderson performed the following:

- ERU was shut-off.
- The AHU return air damper was locked open.
- The AHU outside air damper was locked shut.
- Minimal outdoor air (actual quantity unknown) was being brought in thru the ERU.

The above modifications have reduced the quantity of ventilation air provided by the system and further investigation is recommended to properly resolve the issue.

b. A hot water radiant floor heating system (RFHS) was installed to heat the concrete floor slab and provide heat to the courtyard.

1) The RFHS consists mainly of the following:
   - Main heating water pumps serving AHU
   - RFHS pump
   - Piping and shut-off valves
   - Space thermostat

2) When the RFHS was originally designed, the intention was that the RFHS would operate automatically via the space thermostat and be utilized as a primary heat source throughout the heating season. As currently installed, the RFHS is operated manually and only utilized for specific weekly events.

3) The RFHS cannot function automatically as designed for the following reasons:
   - With the current piping layout, the main heating water pumps serving the courtyard AHU provides flow thru the RFHS even when the RFHS space thermostat is satisfied and the radiant floor heating pump is de-energized.
   - There are no control valves to control flow to the RFHS.

4) According to maintenance personnel, the RFHS when energized can cause the AHU to go into cooling mode therefore wasting energy. As mentioned above, once the RFHS is manually energized, there are no means to automatically control the RFHS based on space temperature, therefore causing the space temperature

to rise above the AHU space thermostat setting and trigger the AHU to go into cooling mode.

6. General Plumbing

   a. Plumbing Fixtures: The plumbing fixtures in the public restrooms seemed to be in good shape. The water closets (1.6 GPF) and urinals (1.0 GPF) were of the low flush type.

   b. Domestic hot water is provided by electric water heaters. The existing hot water distribution system does not have a recirculating pumps and piping as required by the current code.

## D. RECOMMENDATIONS AND ASSOCIATED COSTS

1. HVAC:
   a. The facility would benefit from a full control system upgrade. Some systems in the building are served by a pneumatic control system that contributes to a higher maintenance cost and can be difficult to acquire replacement parts. In addition, a full building wide BMS would provide better monitoring and alarm for temperature and humidity control. Air filter pressure drops could be monitored and alarmed in addition to trending of space temperature and humidity that would be an improvement over the existing data loggers located in the galleries. Budgetary construction: $100,000

   b. Replace the multi-zone AHU, return air fan and ACCU installed in 1981 that serves the original 1930 building and 1949 expansion within the next 5 years. The recommended system would consist of a VAV AHU along with seven (7) VAV boxes to serve the different zones and an ACCU. The new system would be more energy efficient with an estimated overall annual energy savings of 58% based on manufacturer's comparison data. Budgetary construction cost in 5 years: $120,000

   c. Replace the electric steam humidifier installed in 1981 that serves the multi-zone AHU as soon as possible. Budgetary construction cost: $15,000

   d. Replace the VAV AHU, return air fan and ACCU installed in 1994 that serves the building expansion within the next 5 years. In order to save energy, the new system would utilize VFDs to control the supply and return fans in lieu of variable inlet guide vanes. The overall annual energy savings is

estimated to be 21% based on manufacturer's comparison data. Budgetary construction cost in 5 years: $85,000

e. For the HVAC system serving the Cushwa Courtyard, reverse what was done in January of 2014 and restore the operation of the system back to the original design intent. Reduce the outside air to the system and if possible, convert the ERU unit to a variable air volume unit and utilize CO2 sensor to save energy: Budgetary construction cost: $15,000

f. For the RFHS serving the Cushwa Courtyard, convert from manual operation to automatic by modifying the piping and pumping layout, adding three-way mixing valves, removing the space thermostat and integrating with the AHU thermostat and providing necessary controls. Budgetary construction cost: $15,000

2. PLUMBING

a. Replace water heater: Budgetary construction cost: $2,500

b. Install hot water recirculation lines: Budgetary construction cost: $5,000

c. The existing attic space (mechanical penthouse) houses the existing water heater, domestic water distribution piping, and hydronic piping routed throughout the space and is located above the art gallery spaces. Given the proximity of the water piping and the potential damage risk to the gallery spaces/exhibits below should a leak occur, we recommend the addition of drip pans and leak sensors for an added level of protection. The added leak sensors could be incorporated into the facility BMS upgrade noted above.

## I. ELECTRICAL:

### A. EXISTING CONDITIONS

1. Electrical Distribution

   a. The existing electrical service originates from a utility-owned (Hagerstown Light Department) pad mounted, oil filled transformer with a secondary voltage of 120/208 volt, 3 phase, 4 wire. Although not labeled, the transformer size is consistent with a 300 kVA unit, as indicated on original design drawings.

   b. The existing service enters the building's Electric Room underground terminating in an electrical switchboard. The switchboard is a Square D, QED type switchboard, rated for 120/208 Volts, 1600 Amps. It has a single main bolted pressure switch, rated at 1600 Amps and fused at 1200 Amps. There is ground fault protection, although not required on 208V systems by the NEC.

   c. The main switchboard distribution section is manufactured by Square D, and is rated for 120/208 volts, 1600 Amps. The distribution section utilizes circuit breakers, and the circuit breakers are well marked. There is room for additional circuit breakers.

   d. The main switchboard is located in a storage area in the basement. There are crates and boxes stored in the same room, but sufficient clearance in front of the switchboard is maintained.

   e. Electrical distribution is provided through additional panelboards located throughout the building. Electrical panels are typically rated from 100 Amps to 225 Amps, and are located out of the main exhibition areas.
      1) Panels located in finished areas are flush mounted, in the basement and mezzanine they are surface mounted.

   f. Visible portions of the distribution system indicate feeders consisting of EMT type of conduits, and branch circuits consisting of a combination of EMT conduits and MC cables. These appeared to be in generally good condition.

g. The entire electrical distribution system was completely upgraded as part of the 1994 building expansion. The system appears to be well maintained, and in good condition.

h. Maintenance staff did not report any problems with equipment, breakers, nuisance trips, etc.

2. Fire Alarm

a. The existing fire alarm system is a fully addressable system, with voice evacuation. The fire alarm control panel is by Fire-Lite alarms, model number MS-9600UDLS. The fire alarm system was completely upgraded in 2011. Sticker on FACP indicates installation or maintenance by Dynamark Security Centers.

b. There is an LCD fire alarm annunciator and remote microphone cabinet located in the foyer.

c. There is no HVAC shut down switch. Any HVAC upgrade will require installation of an HVAC shut down, per NFPA 90A.

d. Fire alarm device coverage appears to be up to current codes.
    1) Duct detectors were visible on HVAC units. We did not verify unit CFM ratings, which precisely determines the need for duct detectors.
    2) Smoke detector coverage appeared to be adequate by current Codes.
    3) Strobe and speaker coverage appeared to be adequate per current Codes.
    4) Manual pull stations were located at all exit points.
    5) The devices were last tested in October, 2014, and passed, based on documentation that Kibart received.

e. Fire alarm wiring was typically run in EMT conduit, or as MC cable.

f. During a service check of the fire alarm system performed in December, 2013, there were several reported issues with the fire alarm system. These included disabled ground fault detection, miswired devices, devices out of synch, and use of devices incompatible with the control panel/system.

These issues are not readily apparent, but prevent proper monitoring of devices by the fire alarm system, and jeopardize the reliability, safety, and confidence in this critical life safety system. As of the time of this report, these issues have not been resolved, to our knowledge. However, Atlantic Security has been contracted to provide a proposal to correct the issues.

3. Exit and Egress Lighting Systems

   a. Emergency egress lighting is provided by battery-backed lighting units. In back-of-house areas, the egress lights are combination battery/light units. Throughout the exhibit spaces, the egress lights are remote lights with a remote battery.

   b. Egress fixtures appear to be well maintained and in good condition. A random sampling was tested during our visit, and they operated properly when tested.

   c. The egress lighting system is not currently backed up by an emergency generator.

4. Lighting Systems

   a. The lighting throughout the building is a combination of many technologies and systems.
      1) Lights in the back of house areas are typically fluorescents, and are a combination of T12's and T8s. Some areas still utilize incandescent light fixtures.
      2) Lights in the office and store areas are fluorescent. Fixtures in the offices are T8's, fixtures in the store are T5.
      3) Lights in the exhibit area are a combination of ceiling mounted globe fixtures and track lights. The globe fixtures are fluorescent. The track fixtures are incandescent, but many have had LED lamps installed.
      4) The lobby has a cold cathode cove light. The entry vestibule's cold cathode cove was replaced with an LED string light.
      5) Exterior and site lighting fixtures are typically metal halide fixtures.
         a) Parking lot light fixtures are pole-mounted, decorative acorn style fixtures.
         b) Other site lighting utilizes a mixture of flood lights, in-wall lights and pole lights.

c) Exterior lights are controlled by a contactor and time clock.

b. All lighting systems are manually controlled, by a combination of switches, contactors and relays.

1) Manual controls, as installed in this building, no longer meet energy code.

5. IT/Telecom System

a. The IT/Telecom system is located in the basement. The incoming telephone service terminates at a plywood backboard. The backboard contains several punch blocks and routers for low voltage cable distribution. The backboard had ample space for additional equipment.

b. There were items piled up on the floor in front of the backboard. They did not prevent proper operation of the equipment, although it does interfere with access.

c. The phone system is an Avaya VoIP system.

d. A small self-contained UPS provides backup power for the phone systems.

e. No problems were reported during our investigation.

6. Security Systems

a. The security system is located in the basement. The security equipment is mounted to several plywood backboards, and consists of several locking cabinets.

b. There were items piled up on the floor in front of the backboard. They did not prevent proper operation of the equipment, although it does interfere with access.

c. The security system utilizes Altronix and Dynamark Security Centers equipment. The equipment is functional but is outdated, and does not have features that will allow for downloading of records.

d. Security coverage includes sensors and alarm contacts, and covers all points of entry, including the roof.

e. Camera coverage is limited through the building. There are cameras in the exhibit areas, the lobby, the classroom areas, and there are several cameras outdoors.

f. Two exterior CCTV cameras have had their cable cut.

7. Lightning Protection System

a. The building currently does not have a lightning protection system. There is no Code requirement for a lightning protection system.

## B. RECOMMENDATIONS AND ASSOCIATED COSTS

1. Electrical Distribution

a. The electrical distribution system is in good condition and has been well maintained. We do recommend that Square D, or a NETA certified electrical testing/maintenance contractor be contacted about additional internal inspections and preventative maintenance on the main bolted pressure switch, and ground fault protection system, to ensure proper operation. The testing of the electrical distribution system and panels should be done every 2-3 years. Budgetary cost: $5,000.

b. A whole-building generator could be added, to provide back-up power in the event of a power outage. The whole-building generator would cover the egress and life safety needs of the museum, and would also provide additional power to keep the HVAC systems running to maintain a proper environment for the collections on display. The generator would most likely be a diesel unit (approximately 300kW/375kVA), with a sub-base tank and weatherproof enclosure, to be located outside, and would require the addition of two automatic transfer switches. Budgetary cost: $200,000.

2. Fire Alarm

a. The existing fire alarm system is a fully addressable system with voice evacuation, and device layout is up to current codes. We do not recommend any changes to this aspect of the system.

b. Fire alarm systems required yearly inspection and maintenance. The museum should insure that this system receives these minimum inspections. Brewer presently has

the maintenance contract for the sprinkler system, smoke detectors and fire extinguishers.

c. The underlying issues with the fire alarm system (ground fault issues, mis-wired devices, etc.) need to be resolved. A certified fire alarm company should be contacted to either repair or completely replace the current control panel, NAC panel and EVAC panel. Budgetary cost: $10,000-$20,000.

3. Exit and Egress Lighting Systems

a. The emergency egress lighting is well maintained and in good condition. Some of the fixtures are older halogen fixtures, but as long as the fixtures are functioning properly there is no reason to replace them.

b. A regular, and documented, inspection and testing should be performed annually, as weak batteries are often the most common type of problem. They may initially light, but quickly lose power, far short of the required 90 minute operation per NFPA. Budgetary cost: $1,000.

c. An emergency generator could be added to provide power for the life safety systems. The generator would most likely be a diesel unit (approximately 50kW/63kVA), with a sub-base tank and weatherproof enclosure, to be located outside, and would require the addition of two automatic transfer switches. The generator would provide power for the egress lighting, fire alarm and security, and freeze protection, and we recommend that it provide power for the servers as well. Budgetary cost: $50,000.

4. Lighting Systems

a. The lighting throughout the building is a combination of many technologies and systems, and represents a significant opportunity for energy savings. The existing lighting and controls also do not meet IECC 2012.
Estimated savings and payback periods are based on an estimated 55 operating hours per week (10 hrs Tues-Sat, 5 hrs Sun) and $0.10/kWh electrical cost.

1) The back of house lights should be upgraded to fluorescent, we'd recommend T8's or T5's. These areas may not provide significant energy savings, due to the limited use of these lights, but they will need to be upgraded to meet current energy code. Use of consistent lamping and ballasts will assist maintenance

and reduce required inventory of spare parts on hand. Budgetary cost: $5,000. Estimated cost savings of $200/yr.

2) The office areas are generally over-lit, with many areas showing far in excess of the current IES recommended 40 fc. The occupants have taken the lamps out of several fixtures in some of the offices, but this does not always reduce energy, as ballasts are often left energized. This work is of a small scale, and will not generate significant energy savings, but could easily performed in-house.
3) The incandescent track lights in the exhibit areas should be replaced with LED lamps. These lights represent the greatest energy usage in the museum, and replacing them with high-efficiency LEDs would have a big impact. Budgetary cost: $3,000, based on an estimated 50% of lights remaining to be replaced. Estimated cost savings of $1500/yr.
4) The entry vestibule's LED cove light is extremely dim, the string light that was used to replace the cold cathode was likely not the best fixture for that application. The string light should be replaced with a proper LED cove fixture, having higher lumen output, more LED's per foot, etc. Budgetary cost: $2,000.
5) The exterior and site lighting fixtures are primarily metal halide. These fixtures should be replaced with LEDs, offering a large energy saving potential, especially for fixtures used dusk to dawn. Pole fixtures could possibly retain poles, with new post-top fixtures. Budgetary cost: $15,000. Another option would be to retrofit the existing fixtures to LED, at an estimated budgetary cost of $3,000. This would require additional investigation, to verify that the fixtures are capable of being upgraded. Estimated cost savings of $400/yr.
6) The fluorescent fixtures should all be standardized to the same technology – T8s or T5s, to minimize maintenance and simplify lamp stock.
7) LED lighting option. Replace all fluorescent troffer fixtures with 2x4 LED troffers. LED fixtures will reduce maintenance, and provide increased controllability allowing for increased

energy savings. Budgetary cost: $25,000. Estimated cost savings of $1450/yr.

b. All lighting systems are manually controlled, by a combination of switches, contactors and relays. Estimated savings and payback periods are based on an estimated 55 operating hours per week (10 hrs Tues-Sat, 5 hrs Sun) and $0.10/kWh electrical cost. Savings for occupancy sensors are estimated at 10-20%. Some manufacturers claim as much as high as 50%, but based on experience and the use of the space, we feel a more conservative estimate is appropriate.

1) Manual controls no longer meet energy code. There is no current requirement to upgrade them, but any major lighting retrofit will likely require a lighting controls upgrade.
2) Back of house areas (excepting mechanical and electrical equipment rooms) should have their switches replaced with vacancy sensors. These switches will be manual on, and will automatically shut off fixtures after the room is unoccupied. Budgetary cost: $1,000. Estimated cost savings of $75/yr.
3) Corridors through the main exhibition area should remain on during museum operating hours. Occupancy sensors or a time clock should be installed to verify that lights are shut off after closing. Budgetary cost: $500. Estimated cost savings of $50/yr.
4) Offices and store areas should have their switches replaced with vacancy sensors. Budgetary cost: $1,500. Estimated cost savings of $150/yr.
5) Public bathrooms should have their switches replaced with occupancy sensors, which will automatically turn the lights on and off. Budgetary cost: $500. Estimated cost savings of $50/yr.
6) Exhibition halls should have their switches replaced with occupancy sensors. These sensors should be located in the halls and in the corridors, so that the lights are on before visitors enter the exhibition halls. Budgetary cost: $5,000. Estimated cost savings of $300/yr.
7) The lights in the Diana gallery should be controlled by a photo sensor, so that the lights automatically turn on at night, and off in the

morning. Budgetary cost: $500. Estimated cost savings of $20/yr.

8) The exterior and site lighting should be controlled by a photo sensor in addition to the time clock, to allow for more precise on/off operation. Budgetary cost: $500. Estimated cost savings of $75/yr.

5. IT/Telecom System

   a. The IT/Telecom system appears to be adequate, with no deficiencies or installation issues.

6. Security Systems

   a. The security system should be upgraded to modern equipment, with full reporting, documenting and alerting functions. Budgetary cost: $10,000-15,000.

   b. The two exterior CCTV cameras with cut cables shall be reconnected. All exterior cabling shall be rerun in conduit. Budgetary cost: $5,000.

7. Lightning Protection System

   a. The building currently does not have a lightning protection system. Per NFPA 780, based on the building's location, construction and contents, it is recommended that a lightning protection system be installed. Budgetary cost: $15,000-$20,000.

**MILLER & ANDERSON**

INCORPORATED

**Mechanical / Plumbing Contractors**

PO Box 128 / 3470 Martinsburg Pike
Clear Brook, VA 22624
*Providing professional contracting services since 1911*
Phone: 540-667-4757 Fax: 540-667-8038
*www.millerandanderson.com*

Mrs. Rebecca Massie Lane

Director

Washington County Museum of Fine Arts

P.O. Box 423, 401 Museum Drive

Hagerstown, Maryland 21741

Dear Mrs. Lane,

Miller and Anderson, Inc. herewith submits it Proposal regarding the recommendation for Modifying the HVAC System into a VAV system with Reheat. This proposal was done with the intent to give the Museum a more consistent and controllable HVAC System stabilizing the humidification and giving the system a level of redundancy to meet new requirements for the future.

Attached is a Scope of Work for what would be a Design- Build concept in agreement with the direction and engineering review performed by John McClain of Kibart Consulting Engineers.

Principles for this work will be:

John D. McClain, P.E. Kibart Engineering 410-494-4111

901 Dulaney Valley Rd., Suite 301

Towson, Md. 21204

Ken Lloyd, V.P. Engineering/ Mechanical Contracting.

Miller and Anderson, Inc.

P.O. Box 128, 3970 Martinsburg Pike

Clear Brook, Va. 22624

540-667-4757

John M. Dick President/ Senior Engineering

Miller and Anderson, Inc.

Thomas J. Dick. Exec. V.P.

Miller and Anderson, Inc.

Bill Nalley, Project Engineering

Miller and Anderson, Inc.

Thank for the opportunity to quote this work. If any questions please call me at 540-667-4757.

Sincerely,

John M. Dick

President

Miller and Anderson, Inc.

**GENERAL SCOPE OF WORK**

**DEMOLITION:** The existing York Air Conditioning unit and ductwork will be demolished and removed from the site. This will include the reclaiming of the R-22 Refrigerant, decoupling the refrigerant piping, insulation, and specialties to the Air Handling Unit. Removing the Electrical starters, motor and ductwork from the unit to the shaft where the ductwork goes up to the attic. An appropriate amount of the ductwork will be removed from the attic ductwork system. New ductwork will be connected at that point. The old York Condenser will be disconnected and removed from the site. Appropriate fire alarm equipment to the air handling unit will be disconnected and reserved for future use. The existing Humidification Unit will be restored and reserved for possible future use as back up to the existing system. The existing ERV unit in the attic space will be demolished and removed from site. Ductwork will be demolished as necessary and removed.

The AAON Unit in the attic space will have the Refrigerant system reclaimed for future use. The Condensing unit will be removed as well as much of the piping and insulation. The Air handling Unit will be reconfigured with a Chilled Water coil and the ductwork will be modified to tie into the existing duct system feeding the offices and the 1994 and 2011 additions. Reheat valves presently controlled with pneumatic controls will be replaced with new electronic control valves.

The old steam boiler for humidification will be demolished and removed from the site. The existing Hot Water Boiler will be demolished and new high efficiency boilers installed in the new mechanical room (York AHU room). Piping modifications will be done in various places around the boilers and radiant heat.

**NEW WORK** Miller and Anderson, Inc. will furnish and install modifications to the AAON and Carrier Air Handling Units by adding new chilled water and reheat coils. A new control system to operate these units will be installed as well. Unit will employ a VAV concept with "demand control" ventilation thru CO2 sensors. In place of the old system we will install a new VRF energy recovery system with chilled water hydronic modules and heating hot water hydronic modules as manufactured by Mitsubishi. The condensing units will be coupled together and be located in the same area as the existing condensing units. The existing heating water system will be reused where possible and a new VFD controlled pump system will be installed in the new mechanical room. The chilled water system will have two new VFD controlled pumps. Starters and specialties for flow control will be included with the pumps. A modulating supply duct damper and flow monitor will be installed for the Atrium room with new controls integrating the radiant system with the cooling system. Zone air flow will be monitored with an

airflow monitoring station in the existing ductwork. Piping with insulation will be routed up through the existing ductwork to the attic space. Heating insulation will be ½" thick and chilled water insulation will be 1-1/2" thick. Refrigerant piping will be insulated per manufacture recommendation.

**LIST OF EQUIPMENT AND SKETCHES AND SPECIFICATION SHEETS**

SK- 1 EQUIPMENT LAYOUT

SK- 2 HEATING PIPING CONCEPT WITH 3-WAY VALVE

SK- 3 CHILLED WATER PIPING CONCEPT TYPICAL HOOKUP

SK- 4 REFRIGERANT PIPING/ CONDENSER ARRANGEMENT

MITSUIBISHI EQUIPMENT

2- PUHY-288 TSLMU-A R410A OUTDOOR CONDENSER

1-PURY – HP192TSKMU-A-H R410A OUTDOOR CONDENSER

1-CMB-P108NU-GA BC CONTROLLER (HEATING SYSTEM)

2-CMRY-R160C-J TWINNING REFRIGERANT PIPING KIT

9-PWFY-P72NMU-E-AU REFRIGERANT TO COOLING WATER MODULES

3-PWFY-P36NMU-E-AU REFRIGERANT TO HEATING WATER MODULES

2-CMY-Y302S-G2

6-CMY-Y102LS-G2

2-CMY-Y300CBK2

18-PAR-W21MAA-J RETURN AIR CONTROLLERS (VAV)

1-REVISED WATTMASTER CONTROLS SYSTEM

3-HIGH EFFICIENCY CONDENSING NATURAL GAS FIRED BOILERS- 399M

LOT- AIRFLOW MONITORS PER KIBART SPEC.

1-CHILLED WATER COIL FOR AAON UNIT

1-CHILLED WATER COIL FOR CARRIER UNIT

7-HEATING HOT WATER COIL FOR VAV REHEAT

2-B&G INLINE PUMPS 1.5X1.5X9.5, 3HP 50 GPM 70 FT. HW

2-B&G INLINE PUMPS 3X3X7.375, 5 HP 150 GPM 50 FT. CW

LOT SPECIALTIES, AIRTROLS, EXPANSION TANKS, SUCTION DIFFUSERS, PRV, RELIEF VALVES

1-3 WAY CONTROL VALVE WITH RESET CONTROLLER HEATING SYSTEM

ATMOSAIR PURIFICATION SYSTEM (2) Units.

**DETAILED SCOPE OF WORK**

1. Demolition of the following systems:
   A. Existing Steam Humidification Boiler, removal from State Inspections
   B. Existing York Split System AHU and Condensers with refrigerant reclaim and piping
   C. Removal of Carrier DX Coil and refrigerant and piping and condenser
   D. Removal of Ductwork at Mechanical Room and Attic space as required
   E. Removal of the existing Hot Water Boiler, controls, piping, pumps and insulation
   F. Relocation of useable equipment, valves and hydronic specialties such as tanks
   G. Demolition of controls not needed
   H. Modifications to Radiant Heat in Atrium
   I. Demolition of the ERV Unit in entirety

2. Installation of new Mitsubishi Condensers, Cooling/ Heating Equipment Modules
3. Support racking for modules
4. Refrigerant piping per Sk. 1-4 in copper piping with insulation and valves
5. Supports, anchors, hangars
6. Chilled Water and Hot Water pumps, specialties, Airtrol, Expansion Tanks pump supports
7. Chilled water, hot water piping modifications with specialties, flow setters
8. VFD Starters, testing, and balancing flows
9. Reheat Coils to zoning on Carrier unit, piping modifications to coils
10. Reheat coil and VAV modifications to AAON atrium unit, with piping modifications
11. Vibration Isolation at all equipment
12. Ductwork modifications at:
    A. VAV duct system in attic and at AAON Unit
    B. VAV ductwork at atrium duct system with Airflow Monitor
    C. VAV ductwork Coil modifications and Airflow Monitor at Carrier Unit
    D. Ductwork modifications at the shaft feeding the attic
    E. Ductwork demo of existing ductwork in Mechanical room and basement
    F. Firestop all penetrations or modification
13. Relocation of Heating Piping and installation of new boilers
14. Installation of 3 Condensing Boilers with Gas Piping modifications
15. Installation of 3 AL29C Stainless Steel flue vents to outside
16. Installation of control modifications to VAV boxes with new Hot Water control valve
17. Installation of controls to AAON and Carrier AHU with Fresh air controls and CO2 Demand monitoring
18. Controls on the VAV units, refrigerant modules, condensers, boilers and pumps
19. Control wiring for above

20. Insulation for piping, ductwork, outside air ductwork modification and refrigerant piping
21. Testing and Balancing, Startup of new Equipment with Manufacturer Assistance
22. Lift equipment and rigging of all equipment
23. Labor, Supervision, Project Management, coordination with other trades
24. Taxes and Insurance
25. Cleaning up and removal of all demo material

**TABLE OF VALUES**

| | |
|---|---|
| MITSUBISHI EQUIPMENT | $ 249,412 |
| CONTROLS | $ 46,746 |
| CONDENSING BOILERS (3) | $ 39,893 |
| FLUE VENTING | $ 3,303 |
| WIRING | $ 9,353 |
| AHU COILS | $ 9,353 |
| 7 REHEAT DUCT COILS | $ 6,547 |
| AIRFLOW MONITORS | $ 19,641 |
| ARCHIVE STORAGE HTR. | $ 966 |
| CW PUMPS | $ 4,931 |
| HW PUMPS | $ 4,789 |
| SPECIALTIES | $ 7,458 |
| VFD'S | $ 4,988 |
| DEMO | $ 12,243 |
| PIPING, VALVES, FITTINGS: | |
| VALVES | $ 9,416 |
| HYDRONIC /REFRIGERANT VALVES | $ 6,996 |
| CW PIPING | $ 12,876 |
| HW PVF | $ 3,554 |
| REHEAT COIL PIPING | $ 1,714 |
| RADIANT MODIFICATION | $ 935 |
| REFRIGERANT PIPING | $ 11,582 |
| VIBRATION ISOLATION | $ 1,870 |
| DUCTWORK MODIFICATIONS: | |
| AAON | $ 8,660 |
| VAV, AIRFLOW MONITOR | $ 2,282 |
| CARRIER | $ 4,676 |
| REHEAT, AIR MONITORS | $ 5,456 |
| CAP, SEAL, FIRESTOP | $ 660 |
| ATMOSAIR PUFIFIER | $ 30,980 |
| **SUBTOTAL MATERIAL & TAX** | **$ 515,824** |

| | | |
|---|---|---|
| SUBS: | | |
| INSULATION | | $ 11,412 |
| TESTING/ BALANCING | | $ 7,389 |
| LIFT, CRANE | | $ 6,824 |
| DEMO CONT. REMOVAL | | $ 2,485 |
| MOTORIZED ADD'L CONTROLS | | $ 3,058 |
| **SUBCONTRACT SUBTOTAL** | | **$ 31,168** |
| **LABOR, PROJ. MGMT., SUPERVISION** | | **$ 145,200** |
| **SUBTOTAL CONTRACT** | | **$ 692,192.** |
| **SALES & Gen. Admin.** | **10%** | **$ 69,219** |
| **SUBTOTAL** | | **$ 761,411** |
| **PROFIT** | **10%** | **$ 76,141** |
| **TOTAL** | | **$ 837,552.** |

Funding Plan

Members of the Museum Trustees' Executive Committee have developed a funding plan, detailed below, to support the anticipated replacement cost of $1,142,725.00.

**EXPENSES**

Complete Replacement of Heating/Air Conditioning/Humidification/Air Purification System compliant with the State of Maryland Energy Code. Work includes demolition of outdated, failing boiler and compressor system, modification of reusable equipment, addition of new energy efficient Mitsubishi condensers, modifications to ductwork with addition of new controls and redundancy, and an air purification system.

| | | |
|---|---|---|
| Equipment and Materials | | $ 515,824.00 |
| Subcontractors, Supervision & Labor | | $ 176,368.00 |
| Sales, General Admin (10%) | | $ 69,219.00 |
| Profit (10%) | | $ 76,141.00 |
| Electrical Contractor HVAC Install (estimate) | | $ 100,000.00 |
| Haz-Mat Remediation (estimate) | | $ 20,000.00 |
| Contingency – (unknown circumstances) (7%) | | $ 67,029.00 |
| **Subtotal** | | **$1,024,581.00** |
| Engineering Design Fees | | |
| Design Development | $ 21,385.00 | |
| 95% Engr. Construction Documents | $ 16,888.00 | |
| 100% Engr. Construction Documents | $ 2,811.00 | |
| Engr. Construction Administration | $ 8,240.00 | |
| TOTAL | | $ 49,324.00 |
| Commissioning Services Fee: | | |
| Construction Document Phase | $ 1,428 | |
| Construction/Acceptance Phase | $11,242 | |
| TOTAL COMMISSIONING FEE | | $ 12,670.00 |
| **Subtotal** | | **$1,086,575.00** |
| Fees to prepare bid documents + construction admin (BFM Architects) | | $ 10,000.00 |
| **TOTAL HVAC** | | **$1,096,575.00** |

**REVENUES**

| | |
|---|---|
| *Maryland Energy Administration Grant (**confirmed**)* | *$ 120,413.00* |
| One Donor @ $100k ***(pending)*** | $ 100,000.00 |
| Other Public Funding | $ 350,000.00 |
| Two Donors @ $200k each | $ 400,000.00 |
| Three Donors @ $20k each | $ 60,000.00 |
| Museum's Mathias Fund | $ 42,512.00 |
| Donors under $20k | $ 13,650.00 |
| In-kind donation of services by BFM Architects (secured) | $ 10,000.00 |
| **Total Revenue** | **$1,096,575.00** |

Board of County Commissioners of Washington County, Maryland

Agenda Report Form

Open Session Item

**SUBJECT:** Washington County Strategic Highway Safety Plan

**PRESENTATION DATE:** August 22, 2018

**PRESENTATION BY:** Sheriff Doug Mullendore/Merle Saville

**RECOMMENDED MOTION:** Adoption of the Plan for Washington County

**REPORT-IN-BRIEF:** The Washington County Traffic Advisory Council approved the Washington County Strategic Highway Safety Plan to be presented to the County and municipal governments.

**DISCUSSION:** There has been a significant number of fatal and serious injury crashes over the past six years. As part of a statewide initiative to reduce the number of deaths and serious injuries in the County, the Traffic Advisory Council established a sub-committee to prepare a Strategic Highway Safety Plan for Washington County. The sub-committee presented the plan to the TAC on August 9, 2017 and the TAC voted to approve the plan for presentation to the various governmental entities. The approval by County and municipal governments will sanction the plan for implementation in the effort to reduce deaths and serious injuries.

**FISCAL IMPACT:** None

**CONCURRENCES:** Transportation Advisory Council

**ALTERNATIVES:** N/A

**ATTACHMENTS:** Washington County Strategic Highway Safety Plan and Appendix

**AUDIO/VISUAL NEEDS:**

Appendix A

**Overview of Action Plan:**

- Reduce the number of fatalities by two fatalities each year of the plan.
  1. Increased enforcement emphasis in the Plan Focus Areas.
  2. Conduct Educational and Awareness Programs to change the behavior of the motoring public.

- Reduce the number of personal injuries of occupants in vehicle crashes by 80 persons injured each year of the plan.
  1. Increased enforcement emphasis in the Plan Focus Areas.
  2. Conduct Educational and Awareness Programs to change the behavior of the motoring public.

- Work toward accomplishing zero deaths as a result of crashes in Washington County.
  1. Adoption and implementation of the Strategic Highway Safety Plan.

- Significantly reducing the number of personal injuries as a result of crashes in Washington County.

- Targeted traffic enforcement in high crash locations.
  1. Determine the high crash roadways in the County, particularly those with a high rate of fatalities and personal injuries.
  2. Conduct heavy traffic enforcement on the high crash roadways, particularly during the historic days and times that these crashes are occurring.
  3. Implementation of School Zone Speed Cameras to change driver behavior in these areas.
  4. Work with the State Highway Administration to install cameras, both northbound and southbound, in the area of the Potomac River Bridge on Interstate 81 to monitor traffic conditions for the safety of Public Safety personnel and citizens.

- Work with the State Highway Administration and Governmental entities to implement the Dual Highway Pedestrian Safety Improvements Study.
  1. Work with SHA, the Hagerstown Mayor & Council, and the County Government to find funding to implement the Dual Highway Pedestrian Safety Improvement Study.

- Channel bicyclists to the approved bicycle routes as stated in the City of Hagerstown Bicycle Master Plan and the Regional Bicycle Plan prepared by the Metropolitan Planning Organization.
  1. Provide the Plans to patrol officers so they can become familiar with the plan.
  2. Conduct education and awareness of the Plan for the bicycling public.
  3. Enforcement of violators who ride their bicycles in violation of the laws of the State and municipal ordinances.

- Partner with Washington County Emergency Management Group and Citizens Corp. for community outreach regarding public awareness and education, training, and media campaigns.

The Goals and Objectives will be accomplished through public education, public awareness, engineering improvements and enforcement efforts.

Appendix B

**Distracted Driving Action Plan:**

- Reduce the number of fatalities caused by distracted driving by one each year.
  1. Educate officers on the benefits of enforcing distracted driving laws.
  2. Conduct increased enforcement of the distracted driving laws.
  3. Conduct an aggressive media campaign that informs the public on the disastrous results that can occur by being distracted during the time they are driving.

- Reduce the number of injuries caused by distracted driving by 54 each year.
  1. Follow the same strategies as for reducing fatalities caused by distracted driving.

- Conduct public awareness outreach on the laws for use of cell phones, texting, and emails while driving.
  1. Do Public Service Announcements demonstrating the results of distracted driving.
  2. Do presentations to Civic Organizations on the results of distracted driving.
  3. Create Posters about the Laws pertaining to the use of Electronic Devices while driving.
  4. Conduct awareness programs at the High Schools and College Campuses.
  5. Conduct awareness programs for the general public through various types of planned events.

- Conduct more traffic enforcement of distracted driving laws.
  1. Impress upon officers the need to stop motorists who are violating the distracted driving laws.
  2. Use strict enforcement

- Integrate and foster the use of technologies and engineering applications to address distracted driving infrastructure.
  1. Conduct Assistance Training on connecting cellphones to Bluetooth in their vehicle.
  2. Partner with local vendors to provide Bluetooth headsets that can be used as give aways.
  3. Advocate for the use of apps that prevent the use of cell phones while driving.

- Propose legislation that requires individuals who have been convicted of using electronic devices while driving to attend a Distracted Driving Improvement Class.

- Modify Behaviors related to distracted driving.
  1. Strict enforcement of distracted driving laws.
  2. Education and awareness of how distracted driving affects the brain's ability to process and the reduction in reaction time.

- Partner with Washington County Emergency Management Group and Citizens Corp. for community outreach regarding public awareness and education, training, and media campaigns.

Appendix C

**Bicyclist and Pedestrians Action Plan:**

- Reduce the number of pedestrians killed in crashes by one each year.
  1. Have Officers make personal contact with those pedestrians who are crossing or walking on roadways unsafely.

- Reduce the number of pedestrians injured in crashes by four each year.
  1. Have Officers make personal contact with those pedestrians who are crossing or walking on roadways unsafely.

- Identify and target pedestrian and bicycle safety issues, populations, and locations of concern through the collection, analysis and evaluation of data and information.
  1. Officers should monitor areas of concern for unsafe pedestrian and bicyclists and conduct some education and enforcement.

- Work with the State Highway Administration and Governmental entities to implement the Dual Highway Pedestrian Safety Improvements Study.
  1. Advocate for funding for the major portions of this plan through local, county and state governments.

- Promote safe behaviors of all road users by partnering with Emergency Services for community outreach regarding public education, training, and media campaigns.

- Create and improve roadway environments for safe walking and bicycling through implementation of engineering treatments, land use planning, and system-wide countermeasures.
  1. Work with in the Traffic Advisory Council to improve roadways to support safety amongst pedestrians and bicyclists.

- Channel bicyclists to the approved bicycle routes as stated in the City of Hagerstown Bicycle Master Plan and the Regional Bicycle Plan prepared by the Metropolitan Planning Organization.
  1. Work with Bicycle clubs and organizations to insure they are riding on approved bicycle routes.
  2. Conduct awareness campaigns on the location of approved bicycle routes.

- Develop, apply, and promote technological approaches, including those in vehicles and emergency response equipment, in order to better prevent and reduce the severity of collisions involving pedestrians and bicyclists.
  1. Conduct training of emergency services personnel on safe driving and pedestrian and bicyclist awareness.
  2. Look for ways that technology can be used to help prevent crashes involving pedestrians and bicyclists.

- Identify and promote safe driving and pedestrian behaviors for all motorists and public safety professional at the scene of emergency events.

- Train all personnel who respond to crashes in the Traffic Incident Management System.

Appendix D

**Aggressive Driving Action Plan:**

- Reduce the number of persons killed in aggressive driving crashes by one each year.
  1. Law Enforcement needs to be more aggressive in the enforcement of aggressive driving laws.
  2. Encourage the motoring public to report aggressive drivers and have law enforcement provide a more timely response to those reports.

- Reduce the number of persons injured in aggressive driving crashes by six each year.
  1. Law Enforcement needs to be more aggressive in the enforcement of aggressive driving laws.
  2. Encourage the motoring public to report aggressive drivers and have law enforcement provide a more timely response to those reports.

- Use data-driven approaches to identify driver behaviors and target audiences to focus on aggressive and speed-related enforcement, education, engineering, and emergency services.
  1. Law enforcement should conduct more enforcement on the Interstate highways in the County.
  2. Use speed trailers and other techniques to slow down the motoring public as encouragement to obey speed limits and unsafe driving.

- Develop and implement aggressive driving enforcement practices.
  1. Law enforcement should conduct more traffic enforcement, particularly in historic areas of high crashes.
  2. Use covert means to conduct enforcement that will identify unsafe driving more readily.
  3. More law enforcement visibility on Interstate highways and other prominent roadways were significant numbers of crashes occur.

- Identify and implement effective engineering and technological solutions to reduce aggressive driving.
  1. Identify highways and roadways where the engineering of the roadway has contributed to the increase in unsafe driving resulting in crashes. The work within the Traffic Advisory Council to find engineering solutions to correct these roadway defects.

- Conduct public awareness, training, and media programs aimed at reducing aggressive driving by partnering with Emergency Services for community outreach.
  1. Provide posters and billboards with messages aimed at awareness of aggressive driving and that law enforcement will be conducted strict enforcement.

- Promote and support legislation and adjudication to reduce aggressive driving.

Appendix E

**Occupant Protection Action Plan:**

- Reduce occupant protection crash fatalities by two each year.
  1. Law Enforcement to conduct seatbelt and safety seat enforcement.

- Conduct meaningful surveys on the level of seatbelt and safety seat use in Washington County.

- Community Outreach by partnering with Washington County Emergency Management Group and Citizens Corp.
  1. Do community outreach on occupant protection laws and why they are so important to the protection of the motoring public.
  2. Conduct outreach for the proper installation of child safety seats through event planning and information on trained personnel and locations to conduct the installations.

**Impaired Driving Action Plan:**

- Reduce fatalities in crashes involving impaired driving by one per year.
  1. Law enforcement conducts Sobriety Checkpoints and/or roving patrols in high crash areas.

- Reduce the number of serious injuries in crashes involving impaired driving by ten per year.
  1. Law enforcement conducts Sobriety Checkpoints and/or roving patrols in high crash areas.

- Enhance and improve the enforcement of impaired driving laws.
  1. Increase the number of Sobriety Checkpoints conducted.

- Conduct outreach initiatives including, but not limited to, education, training, and media programs to reduce impaired driving.
  1. Provide brochures on alcohol related crashes to motorists on traffic stops and during Sobriety Checkpoints.
  2. Give presentations to students at high schools and colleges.
  3. Give presentations to civic groups and organizations.

**Highway Infrastructure Action Plan**

1. Identify intersections where the Crash Severity Index is high and implement safety improvements.
   a. Receive target locations from MD SHA OOTS and review intersections.
   b. Receive target locations from local law enforcement agencies based on call volumes.
2. Identify and target safety improvements along corridors where the Crash Severity Index is high and address roadway elements that contribute to crashes.
   a. Review target CSI locations on yearly basis to determine any improvements.
   b. Address pedestrian safety concerns throughout the City and along Dual Highway by including recommendations from the MPO and SHA Pedestrian Studies.

    c. Improve bicycle mobility throughout the County in coordination with the Washington County Bicycle Master Plan.
3. Identify, develop and implement system-wide improvements that address the safety of vulnerable user groups (e.g., bicyclists, pedestrians, motorcyclists, older and younger drivers, etc.)
    a. Gather thoughts and ideas from the public during public meetings to improve overall safety across all modes of transportation.
    b. Use programs such as “Car-Fit” to educate specific target groups of demographic.

4. Partner with Washington County Emergency Management Group and Citizens Corp. for community outreach regarding public awareness and education, training, and media campaigns.

# WASHINGTON COUNTY

# STRATEGIC HIGHWAY SAFETY PLAN

# 2017 - 2020

# TABLE OF CONTENTS:

# Traffic Safety Overview: Moving Towards Zero Deaths

Washington County has three major Interstate Highways that go through the County, Interstate 70, Interstate 81 and Interstate 68. Washington County has also experienced an increase in vehicular, pedestrian and bicycle traffic over the last decade as the population increased and additional businesses moved into the area. As a result, the number of serious and fatal crashes also increased over time. Serious injury is defined as any injury, other than a fatal injury, which prevents the injured person from walking, driving or normally continuing activities he/she was capable of performing before the injury occurred.

Law enforcement resources have been limited as the request for other services have increased and so the amount of time spent on traffic enforcement has decreased. Washington County implemented the Data Driven Approach to Crime and Traffic Safety in 2012. The result was that crime decreased, but traffic fatalities increased. This Strategic Highway Safety Plan will address the shortcomings addressed above so that the goals and objectives of the Plan can be accomplished through partnerships in the community.

Over the past three years (2013 – 2015), Washington County has accounted for approximately 5% of all traffic fatalities in Maryland. That portion has fluctuated from 4.5% to 5.7% to 3.3% over that time, while the County has maintained approximately 2.5% of the State's population and 3.5% of the State's vehicle miles traveled. This means that Washington County is slightly overrepresented in fatalities. However, the proportion of serious injuries (defined as KABCO=4 on the police crash report) has only fluctuated from 2.7% to 2.4% to 1.7%. This means that the County is underrepresented with regards to serious injuries as it related to vehicle miles traveled.

When analyzing traffic citations issued across the State and adjudicated in Maryland District Courts, there are over one million violations each year. From 2013 through 2015, Washington County has accounted for approximately 20,000 (1.6%) of all citations issued each year. This means the citations are issued within the boundaries of Washington County.

# 2017 – 2022 Strategic Highway Safety Plan:

The Washington County 2017 – 2022 Strategic Highway Safety Plan focuses on the specific emphasis areas of **Distracted Driving, Pedestrians & Bicyclists, Aggressive Driving, Impaired Driving**, **Occupant Protection and Highway Infrastructure**, which have been the major factors in causing serious injury and fatalities involving crashes in Washington County. A Strategic Highway Safety Plan Committee, which is a sub-committee of the Traffic Advisory Council, convened to review, strategize and formulate this Plan. All partner agencies of the Traffic Advisory Council have adopted this Plan and are a part of its implementation.

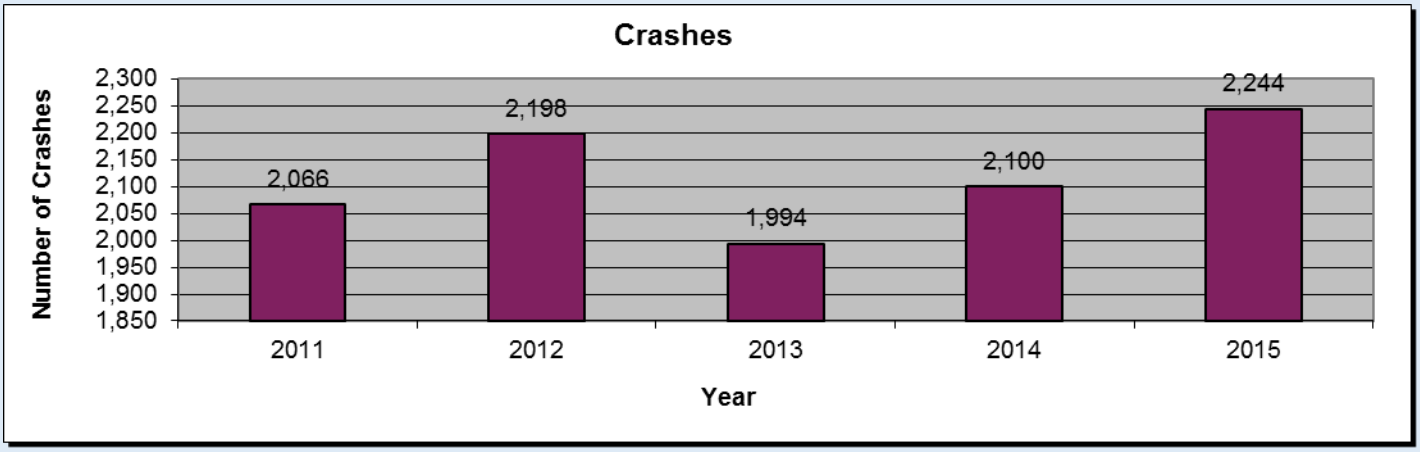
The Plan Committee reviewed historical crash data for the last five years and devised this plan to address the causation of serious and fatal crashes as well as targeting specific roadways where a high number of these crashes have historically occurred.

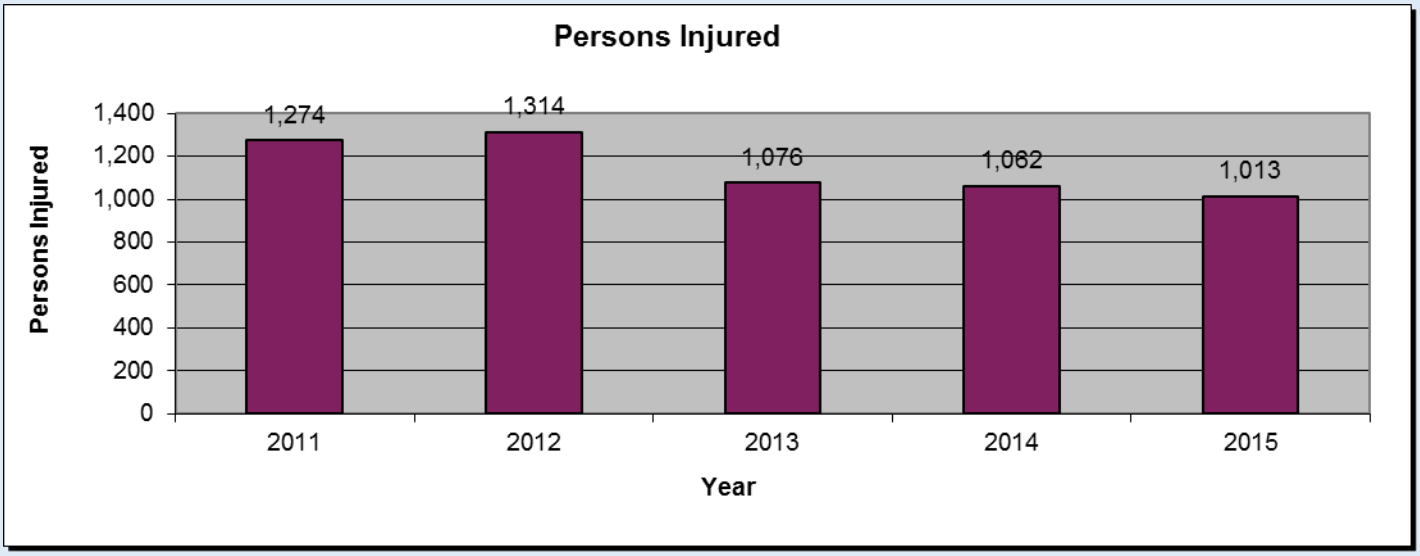


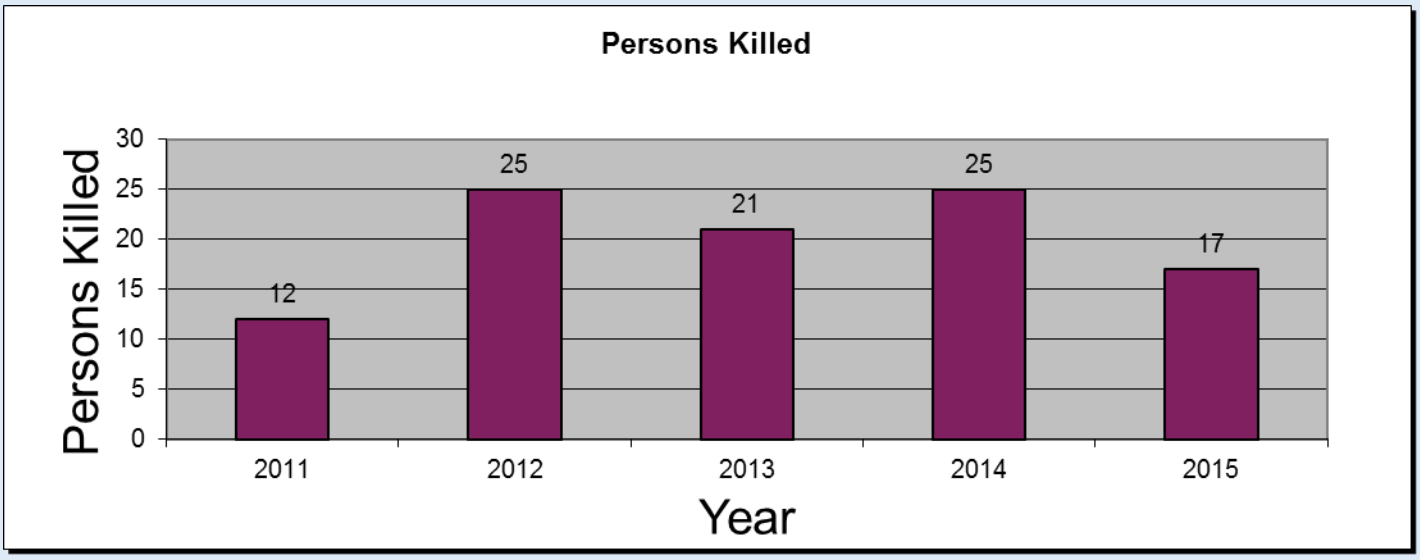
**MARYLAND DEPARTMENT OF TRANSPORTATION**
**Maryland Motor Vehicle Administration**
**Maryland Highway Safety Office**

## Washington County
## Crash Summary

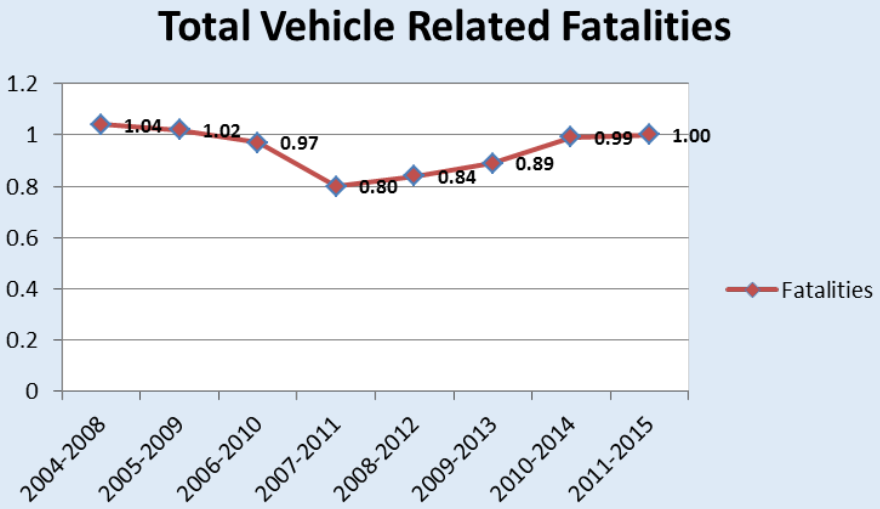
| | 2011 | 2012 | 2013 | 2014 | 2015 | 5 Year AVG. | % |
|---|---|---|---|---|---|---|---|
| **Fatal Crashes** | 12 | 24 | 20 | 22 | 15 | 19 | 0.9 |
| **Injury Crashes** | 847 | 910 | 781 | 760 | 721 | 804 | 37.9 |
| **Property Damage Crashes** | 1,207 | 1,264 | 1,193 | 1,318 | 1,508 | 1298 | 61.2 |
| **Total Crashes** | 2,066 | 2,198 | 1,994 | 2,100 | 2,244 | 2120 | 100.0 |
| | | | | | | | |
| **Total of All Fatalities** | 12 | 25 | 21 | 25 | 17 | 20 | |
| **Total Number Injured** | 1,274 | 1,314 | 1,076 | 1,062 | 1,013 | 1,148 | |

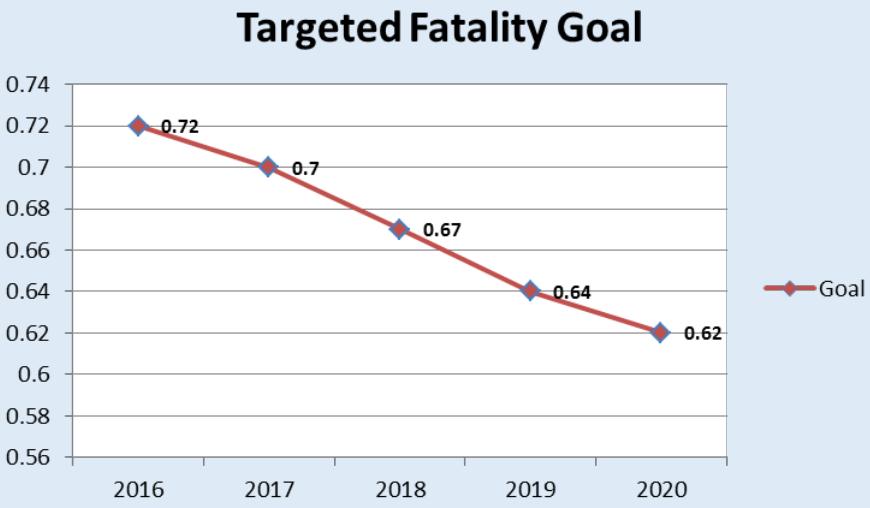





2015 is subject to change. Data is based on reports provided by the Maryland State Police Central Records Division (CRD). 2015 crash reports submitted to CRD during calendar year 2016 (up to December 31, 2016) will be accepted in the database; however, based on an analysis of previous reporting years, nearly all crash reports completed by local agencies have been submitted and processed by this time of year. Revised summary reports may be produced after an analysis is completed on crash reports submitted, or revised, between the run date of this report and December 31, 2016.



The Strategic Highway Safety Plan is established in support of the State of Maryland's Highway Safety Office goal of zero deaths in crashes in Maryland. As you can see by the Fatal Crash Trend chart above, Washington County has begun to trend lower in the last two years in large part due to the increased enforcement efforts of law enforcement. This Plan will incorporate a number of initiatives other than just enforcement and should have a more significant impact toward zero deaths.

## Distracted Driving:

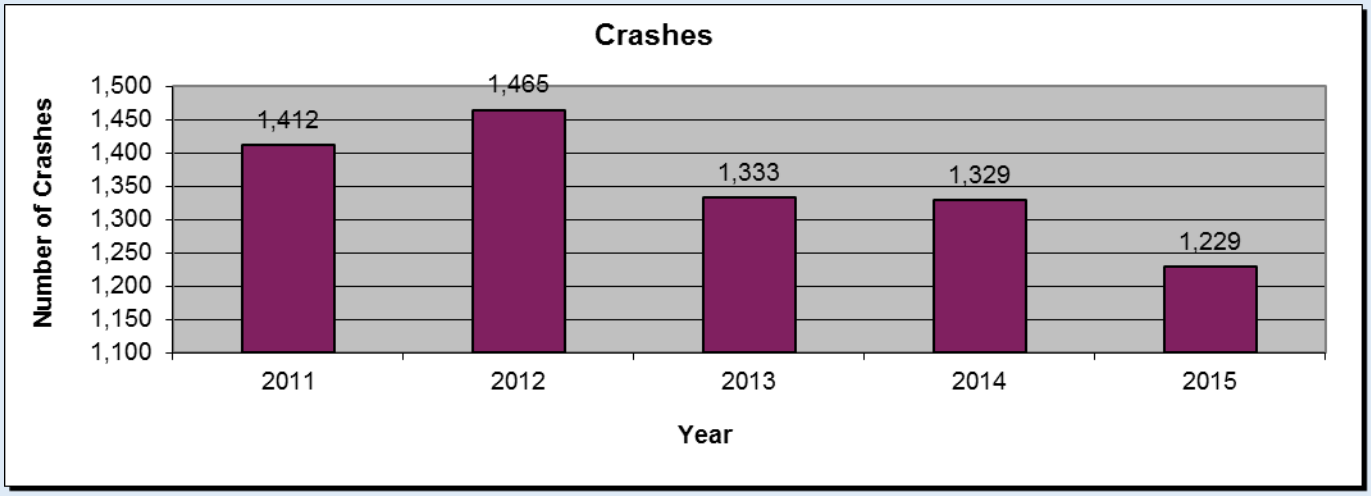

A distracted driving crash occurs when a driver shifts attention away from the driving task to do other things such as texting, cell phone use, adjusting the radio, attending to a child, and a number of other things.

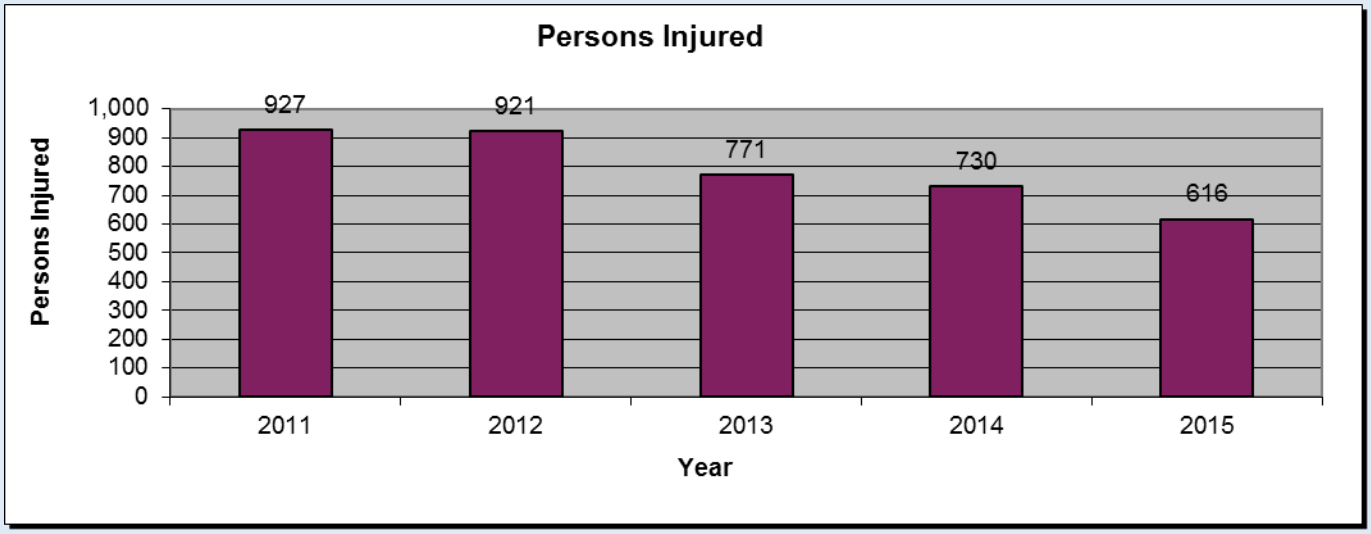
Historically, there has been an average of ten distracted driving fatalities in Washington County, with nine occurring in 2015. Over the past three years, Washington County has accounted for 7.5% of the State's distracted driving fatalities. There has been a significant decline in serious injuries resulting from such crashes in the county as well, from a high of 52 in 2013 (2.7% of all distracted driving serious injuries) to a low in 2015 (1.7% of all). However, those figures also mean that in 2015, 52.9% of all fatalities and 43.2% of all serious injuries in Washington County resulted from distracted driving crashes. Correspondingly, distracted driving crashes resulted in 23.0% of all fatalities and 37.2% of all serious injuries in 2015 statewide. This illustrates the significance of the distracted driving problem in Washington County. Distracted driving violations include the use of handheld cell phone to participate in calls and texting. The issuance of such citations increased dramatically in Maryland in the past three years through increasing restrictions in the laws, from 14,192 in 2013 to 41,277 in 2014, to 42,744 in 2015. As the State saw this increase, Washington County had a slight decrease from a high of 1,232 in 2014 to 706 in 2015 which accounted for 1.6% of the State distracted driving citations. Also, 3.5% of all citations issues in Washington County in 2015 were for distracted driving violations.

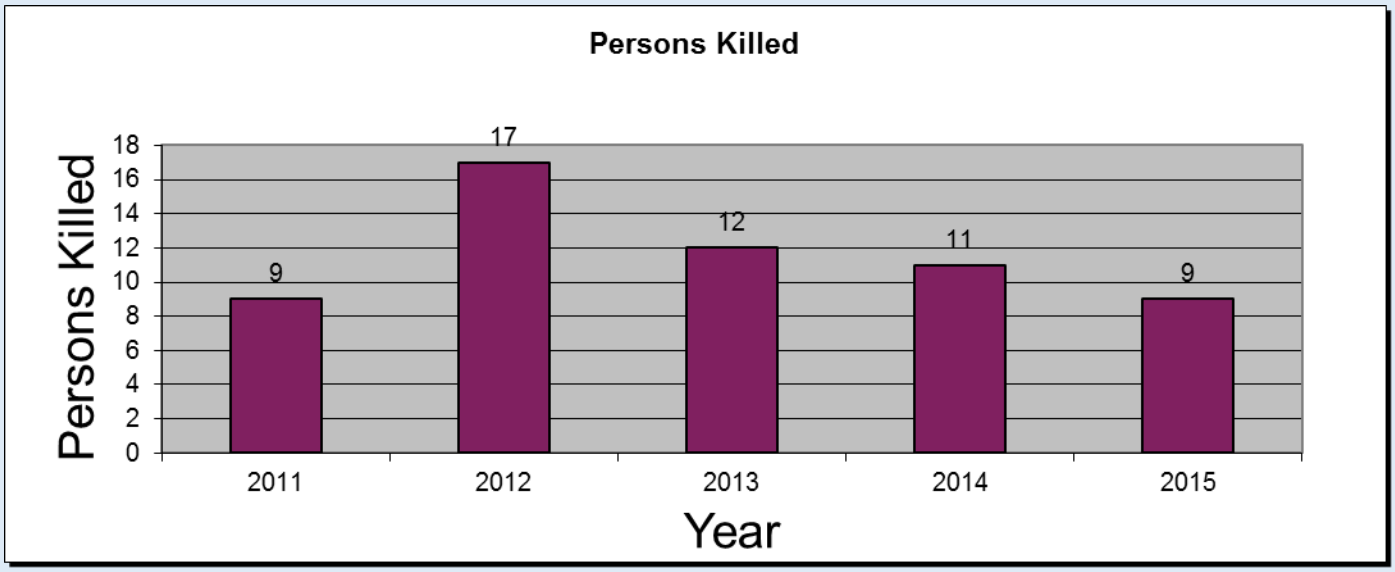
**MARYLAND DEPARTMENT OF TRANSPORTATION**
**Maryland Motor Vehicle Administration**
**Maryland Highway Safety Office**

# Washington Co. - Distracted Driver Involved
## Crash Summary

| | 2011 | 2012 | 2013 | 2014 | 2015 | 5 Year AVG. | % |
|---|---|---|---|---|---|---|---|
| **Fatal Crashes** | 9 | 17 | 11 | 10 | 7 | 11 | 0.8 |
| **Injury Crashes** | 599 | 616 | 550 | 501 | 424 | 538 | 39.7 |
| **Property Damage Crashes** | 804 | 832 | 772 | 818 | 798 | 805 | 59.5 |
| **Total Crashes** | 1,412 | 1,465 | 1,333 | 1,329 | 1,229 | 1354 | 100.0 |
| | | | | | | | |
| **Total of All Fatalities** | 9 | 17 | 12 | 11 | 9 | 12 | |
| **Total Number Injured** | 927 | 921 | 771 | 730 | 616 | 793 | |



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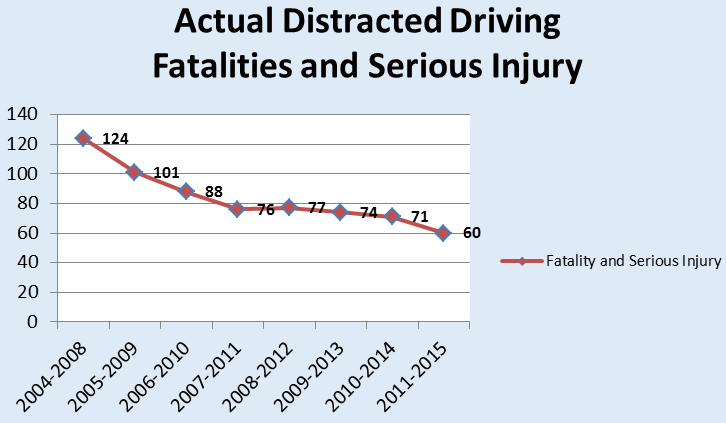
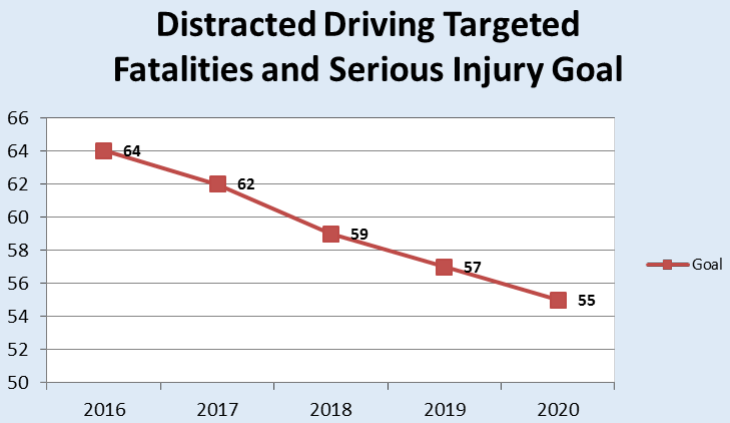



## Distracted Driving Strategies

1. Evaluate and improve **data** quality for problem identification and program evaluation purposes.

2. Enhance and improve **enforcement** of distracted driving laws.

3. Integrate and foster the use of **technologies and engineering application** to address distracted driving infrastructure.

4. Conduct **outreach initiatives** including, but not limited to, education, training, and media programs to reduce distracted driving.

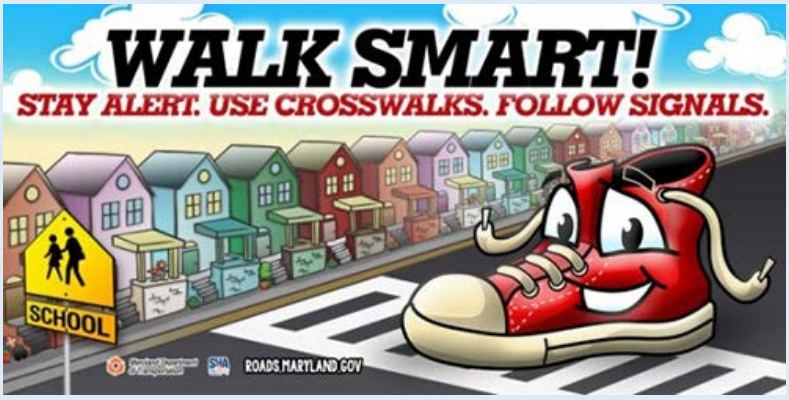
5. Evaluate and recommend **legislation and/or regulations** that address distractive behavior while driving.

## Pedestrians and Bicyclists:

Pedestrian crashes are defined as crashes involving a person reported as a pedestrian on foot, including a motorist who has exited a vehicle.

Bicyclist crashes are defined as crashes involving a person reported as a bicyclist or pedal cyclist.

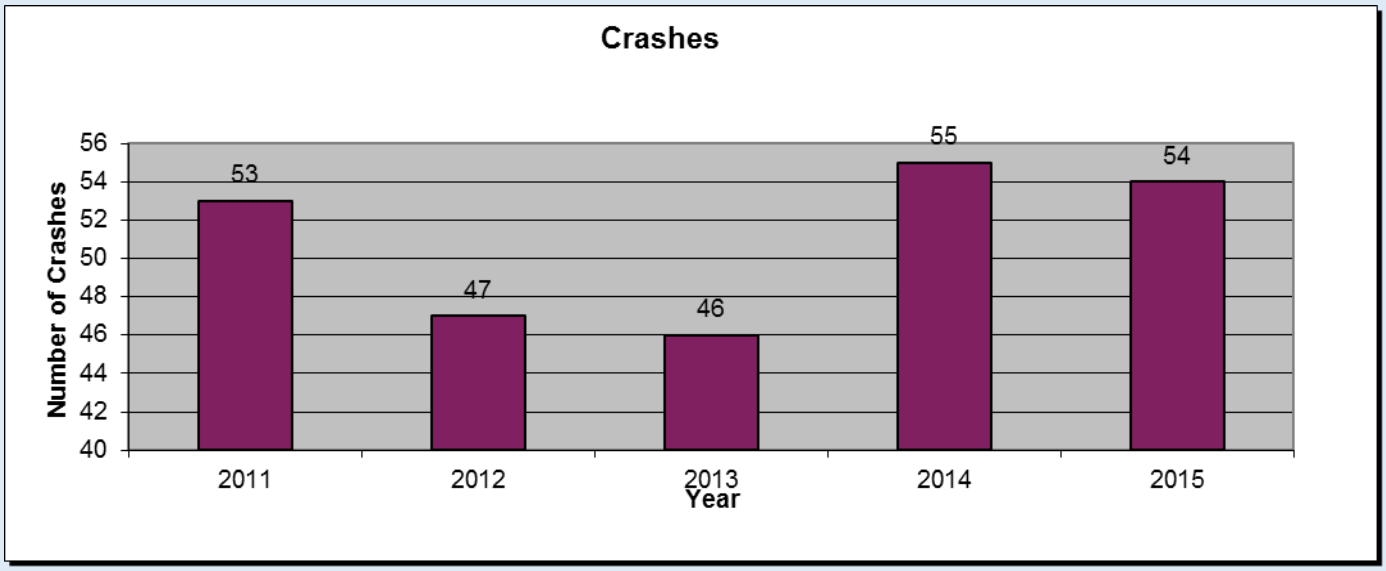
With regards to pedestrian and bicycle safety in Washington County, very few fatalities or serious injuries happen among those populations. Pedestrian fatalities have fluctuated over the past three years, from four in 2013, to six in 2014, to a low of two in 2015. Serious injuries have remained fairly constant with five in 2013, six in 2014, and five in 2015. Bicyclist fatalities have occurred very rarely over the past three years, from zero in 2013, zero in 2014, and one in 2015.

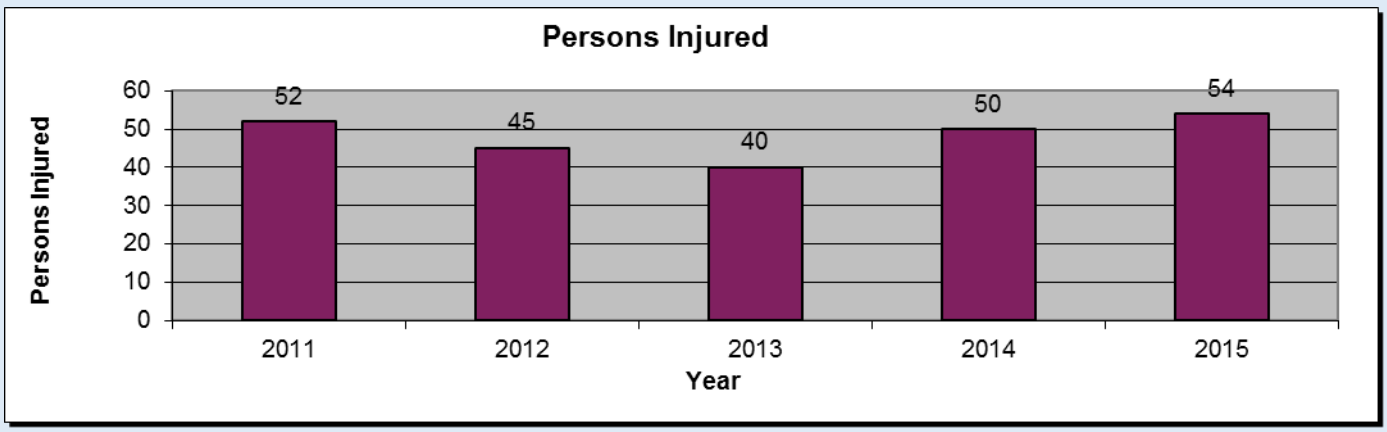


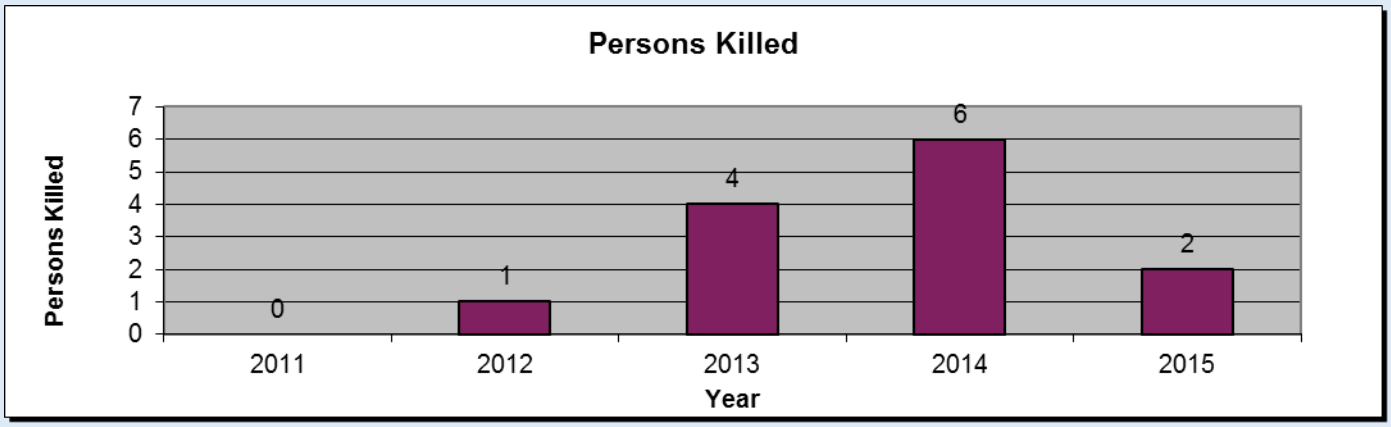

# Washington Co. - Pedestrian On Foot Involved
## Crash Summary

| | 2011 | 2012 | 2013 | 2014 | 2015 | 5 Year AVG. | % |
|---|---|---|---|---|---|---|---|
| **Fatal Crashes** | 0 | 1 | 4 | 6 | 2 | 3 | 5.1 |
| **Injury Crashes** | 47 | 41 | 35 | 46 | 49 | 44 | 85.5 |
| **Property Damage Crashes** | 6 | 5 | 7 | 3 | 3 | 5 | 9.4 |
| **Total Crashes** | 53 | 47 | 46 | 55 | 54 | 51 | 100.0 |
| | | | | | | | |
| **Total of All Fatalities** | 0 | 1 | 4 | 6 | 2 | 3 | |
| **Total Number Injured** | 52 | 45 | 40 | 50 | 54 | 48 | |

*** Averages for all pages are 5 year averages. % is percent of 5 yr total.**



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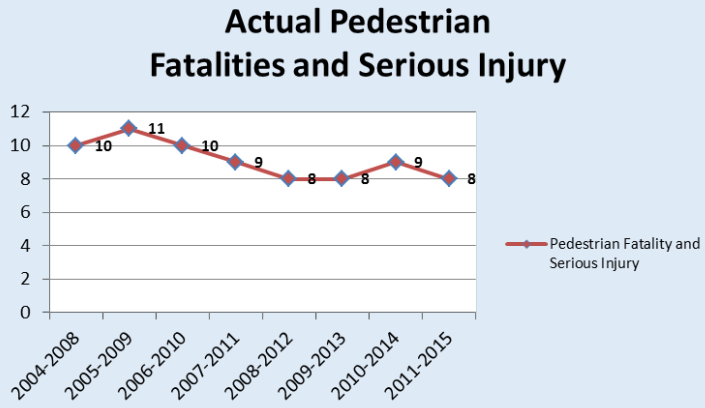
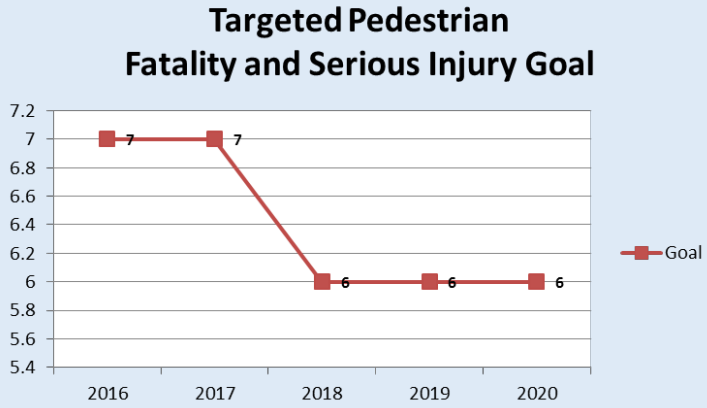



**Pedestrian and Bicycle Strategies**

1. Identify and target pedestrian and bicycle safety issues, populations, and locations of activity and concern through the **collection, analysis, and evaluation of data and information**.

2. Promote safe behaviors of all road users appropriate for the environment through **education and enforcement initiatives**.

3. Create and improve roadway environments for safe walking and bicycling through implementation of **engineering treatments, land use planning, and system-wide countermeasures**.

4. **Develop, apply, and promote technological approaches**, including those in vehicles and emergency response equipment, in order to better prevent and reduce the severity of collisions involving pedestrians and bicyclist.

5. **Identify and promote safe driving and pedestrian behavior** for all motorist and public safety professionals at the scene of emergency events.

## Aggressive Driving:

AGGRESSIVE DRIVERS ARE PUBLIC THREATS

An aggressive driving crash occurs when at least one driver in the crash was reported to be driving aggressively, defined by having one of the following values in the first two Contributing Circumstance fields from the standard crash report form.

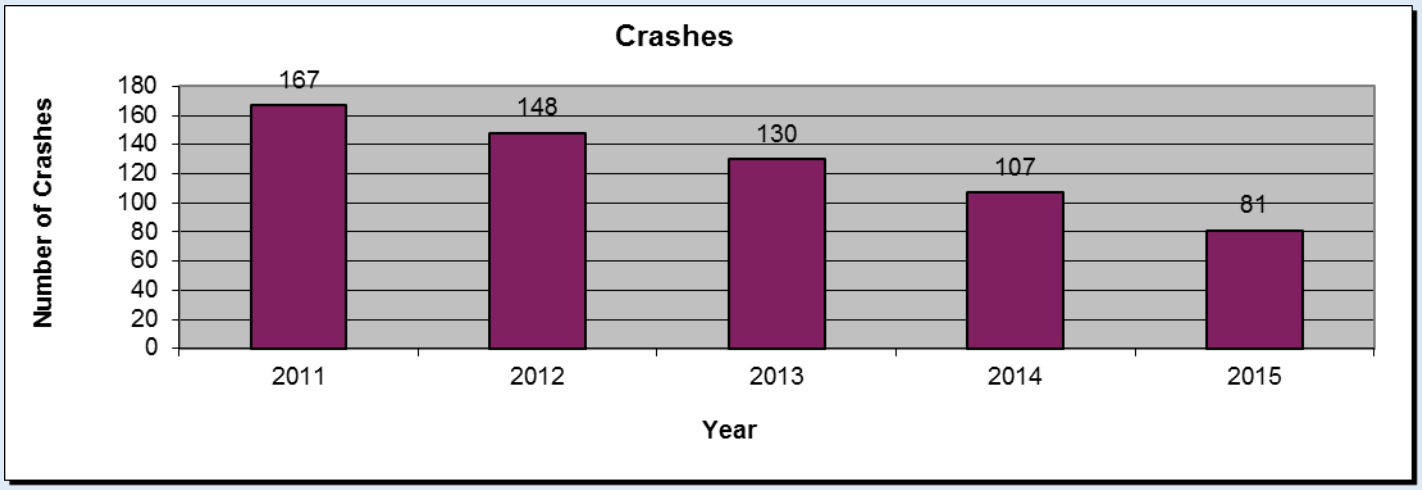
| | |
|---|---|
| Failed to yield the right-of-way | Failed to obey stop sign |
| Failed to obey traffic signal | Failed to obey other traffic control |
| Failed to keep right of center | Failed to stop for a school bus |
| Wrong way on a one way street | Exceeded speed limit |
| Too fast for conditions | Followed too closely |
| Improper lane change | Improper passing |

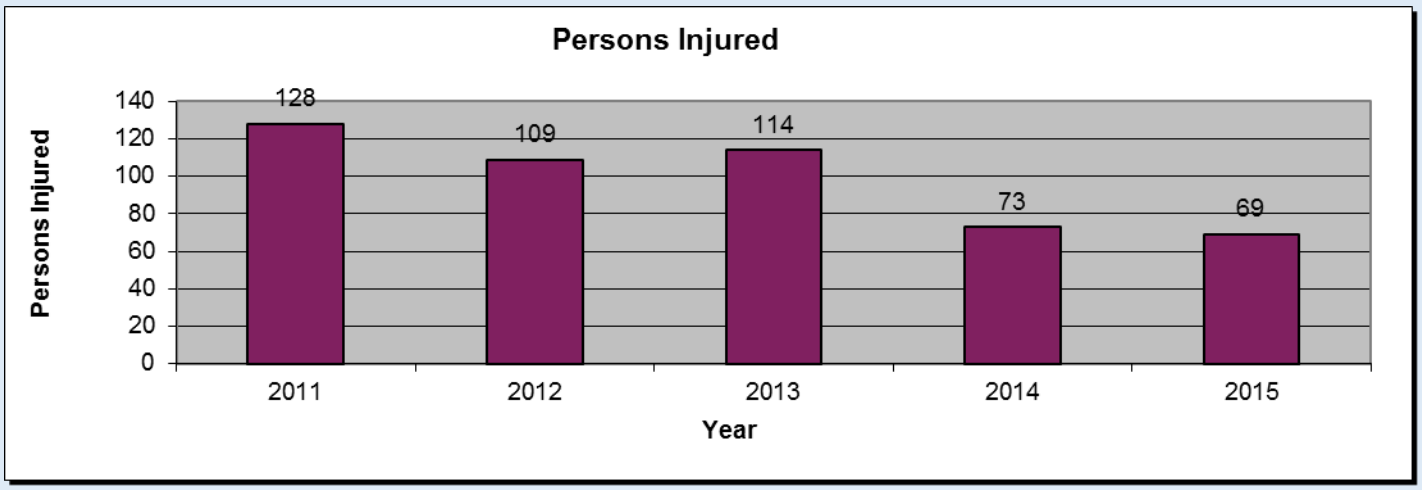
Historically, there have been very few aggressive driving fatalities in Washington County, with zero occurring in 2015. Minimal serious injuries resulted from such crashes in the County as well, from a high of seven in 2013 (2.4% of all aggressive driving serious injuries) to just three in 2015 (1.6% of all). Those figures mean that in 2015, 7% of all serious injuries in Washington County resulted from aggressive driving crashes. Aggressive driving citations are rarely issued in Maryland because a driver must be observed committing three or more specific violations to qualify under the aggressive driving statute. In Maryland, only 797 aggressive driving citations were issued in 2015 and 15 (1.9%) of those were issued in Washington County.

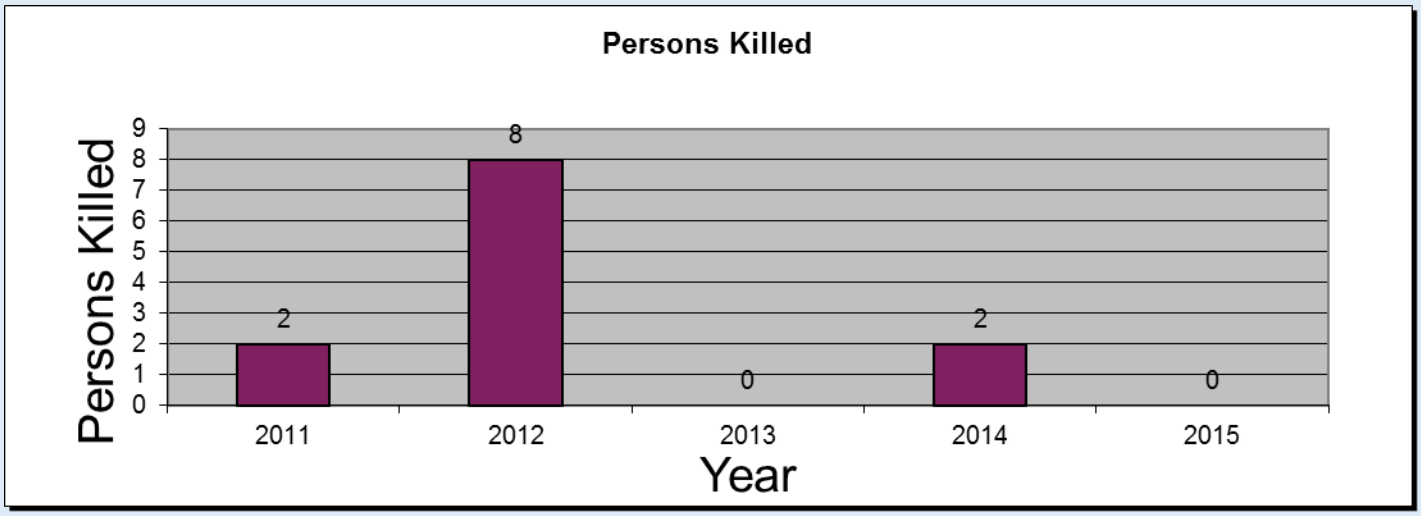

There has been an average of less than ten speed related fatalities in Washington County, with five occurring in 2015. Over the past three years, Washington County has accounted for an average of 8.3% of the State's speeding related fatalities. There has been a significant decline in serious injuries resulting from such crashes in the County as well, from a high of 15 in 2014 (3.3% of all serious injuries in 2015) to a low of five in 2015 (1.7% of all). However, those figures also mean that in 2015, 29.4% of all fatalities and 11.4% of all serious injuries in Washington County resulted from speed related crashes. This illustrates the significance of the speed related fatalities in Washington County. Speeding violations are very common and those adjudicated through the District Court do not include automated speed enforcement. The State has seen an average of 244,588 speed citations issued over the past three years, with 2.0% of those citations being issued in Washington County. Conversely, close to one-quarter (24.1%) of all Washington County citations in 2015 were issued for speeding.

# Washington Co. - Aggressive Driver Involved
## Crash Summary

| | 2011 | 2012 | 2013 | 2014 | 2015 | 5 Year AVG. | % |
|---|---|---|---|---|---|---|---|
| **Fatal Crashes** | 2 | 7 | 0 | 1 | 0 | 2 | 1.6 |
| **Injury Crashes** | 75 | 70 | 66 | 49 | 36 | 59 | 46.8 |
| **Property Damage Crashes** | 90 | 71 | 64 | 57 | 45 | 65 | 51.7 |
| **Total Crashes** | 167 | 148 | 130 | 107 | 81 | 127 | 100.0 |
| | | | | | | | |
| **Total of All Fatalities** | 2 | 8 | 0 | 2 | 0 | 2 | |
| **Total Number Injured** | 128 | 109 | 114 | 73 | 69 | 99 | |



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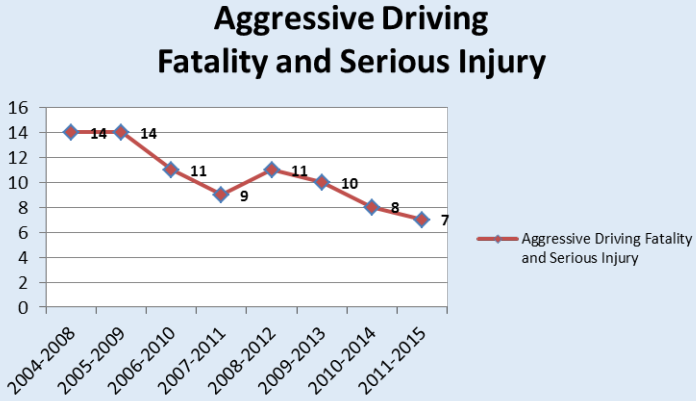
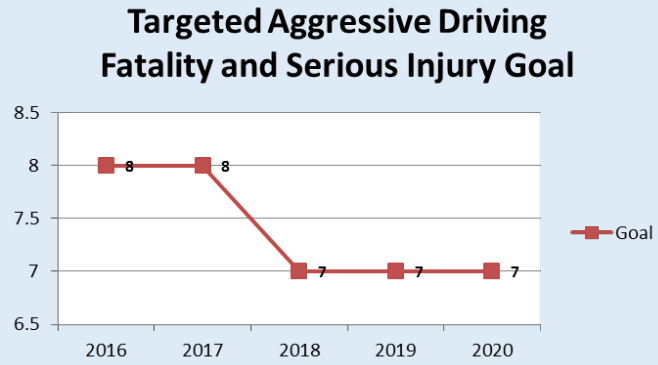



## Aggressive Driving Strategies

1. Use data-driven approaches to **identify driver behaviors and target audiences** to focus on aggressive and speed-related enforcement, education, engineering, and emergency services.

2. Develop and implement aggressive driving **enforcement practices**.

3. Identify and implement effective **engineering and technological solutions** to reduce aggressive driving.

4. Conduct **public awareness, training, and media programs** aimed at reducing aggressive driving.

5. Promote and support **legislation and adjudication** to reduce aggressive driving such as ADOPT.

## Occupant Protection:

The lack of use of personal restraints or protective equipment is typically not a contributing factor to a crash occurring, but when a crash does occur, the severity of personal injury is greatly affected by the lack of use of this occupant protection equipment.


An unrestrained occupant crash is defined as including a passenger vehicle (automobile, station wagon, van, SUV or pickup truck) occupant:

- Less than 8 years of age recorded as not using a Child/Youth Restraint.
- Eight years of age or older recorded as not using a Lap and Shoulder Belt or Air Bag and Belt, or
- Whose restraint use was recorded as using None or Air Bag Only.

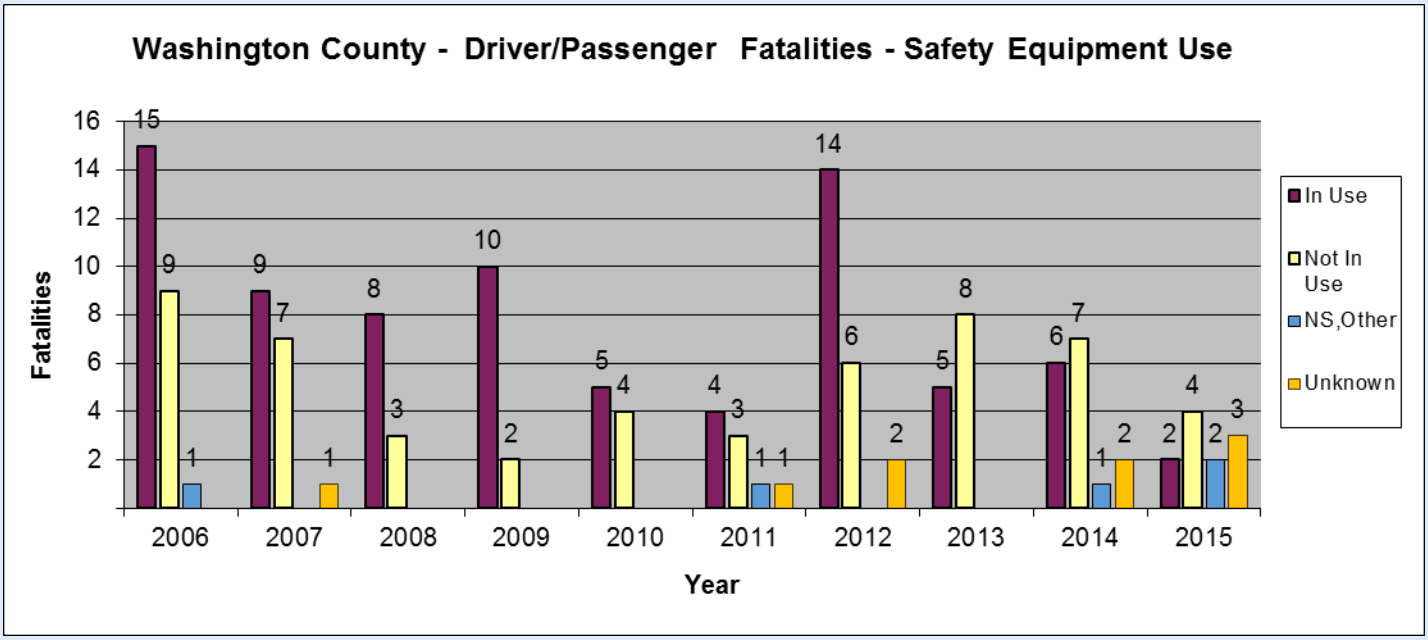
Very few fatalities or serious injuries have occurred as a result of occupant protection over the last three years in Washington County. Fatalities in Washington County resulting from lack of occupant protection decreased from eight in 2013, to seven in 2014, to three in 2015. Serious injuries went from nine in 2013 to six in 2015. These figures account for 4.2% of the State's unrestrained fatalities and 2.1% of the State's serious injuries in 2015.

**MARYLAND DEPARTMENT OF TRANSPORTATION**
**MARYLAND MOTOR VEHICLE ADMINISTRATION**
**Maryland Highway Safety Office**

### Washington County Driver or Passenger - Safety Equipment Use

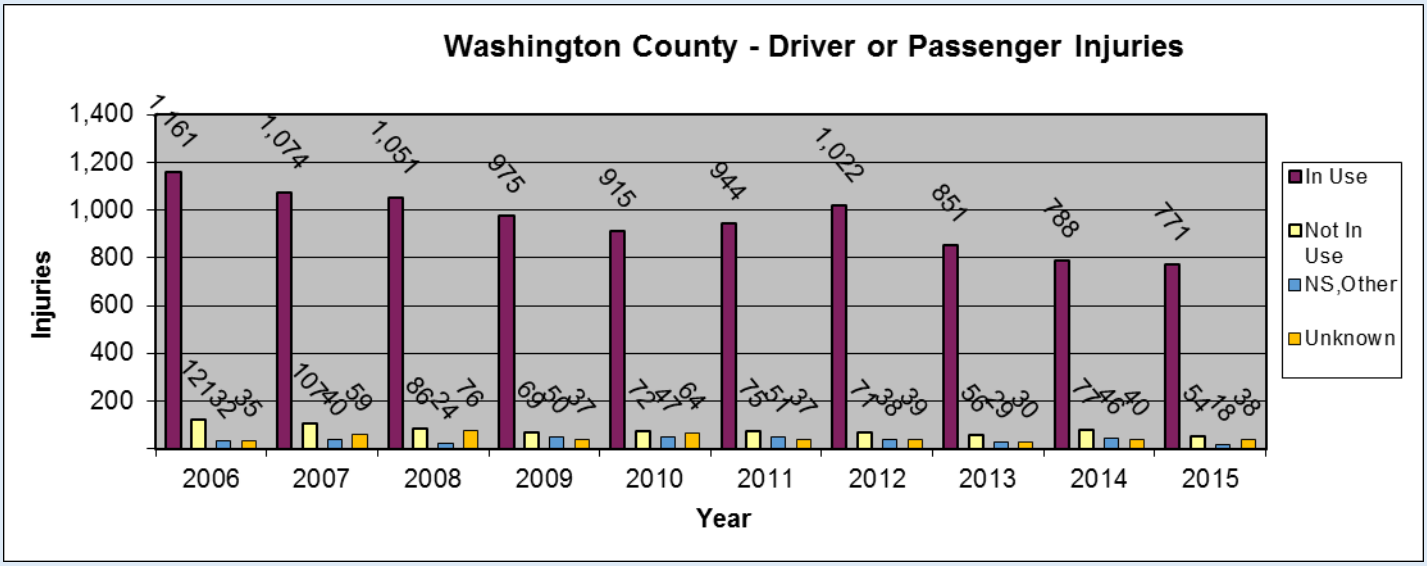
| Safety Equipment | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | TOTAL | AVG. | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| In Use | 15 | 9 | 8 | 10 | 5 | 4 | 14 | 5 | 6 | 2 | 78 | 8 | 53.8 |
| Not In Use | 9 | 7 | 3 | 2 | 4 | 3 | 6 | 8 | 7 | 4 | 53 | 5 | 36.6 |
| NS,Other | 1 | | | | | 1 | | | 1 | 2 | 5 | 1 | 3.4 |
| Unknown | | 1 | | | | 1 | 2 | | 2 | 3 | 9 | 1 | 6.2 |
| Dri/Passenger Fatalities | 25 | 17 | 11 | 12 | 9 | 9 | 22 | 13 | 16 | 11 | 145 | 15 | 100.0 |

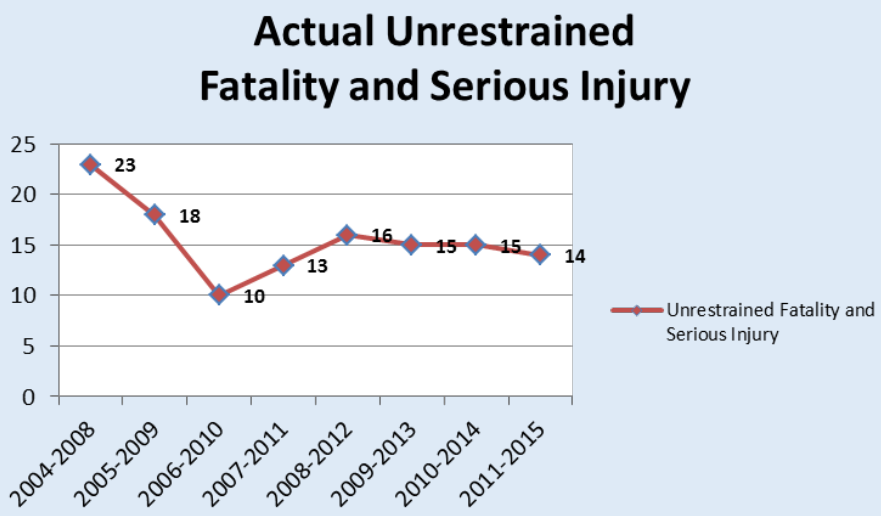
**Safety Equipment Not in Use - Air Bag Only or None. Excludes motorcycles, mopeds and ATV's.**

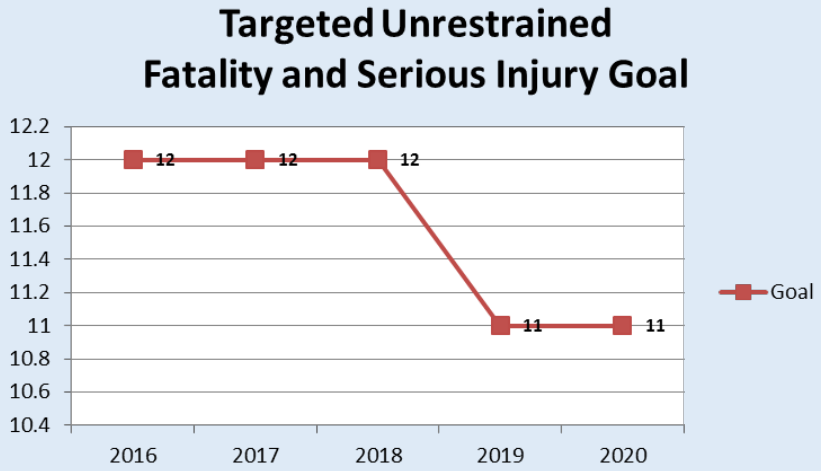



| Safety Equipment | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | TOTAL | AVG. | % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| In Use | 1,161 | 1,074 | 1,051 | 975 | 915 | 944 | 1,022 | 851 | 788 | 771 | 9,552 | 955 | 85.5 |
| Not In Use | 121 | 107 | 86 | 69 | 72 | 75 | 71 | 56 | 77 | 54 | 788 | 79 | 7.1 |
| NS,Other | 32 | 40 | 24 | 50 | 47 | 51 | 38 | 29 | 46 | 18 | 375 | 38 | 3.4 |
| Unknown | 35 | 59 | 76 | 37 | 64 | 37 | 39 | 30 | 40 | 38 | 455 | 46 | 4.1 |
| Dri/Passenger Injuries | 1,349 | 1,280 | 1,237 | 1,131 | 1,098 | 1,107 | 1,170 | 966 | 951 | 881 | 11,170 | 1,117 | 100.0 |

**Safety Equipment Not in Use - Air Bag Only or None. Excludes motorcycles, mopeds and ATV's.**






**Occupant Protection Strategies**

1. Improve the timeliness, accuracy, completeness, uniformity, accessibility, and integration of **occupant protection-related data**.

2. Enhance and improve **enforcement** of adult and child occupant protection laws.

3. Implement adult and child occupant protection **public awareness and education, training, and media campaigns**.

4. Evaluate and recommend **legislation and/or regulations** to advance occupant protection for all ages.

# Impaired Driving:

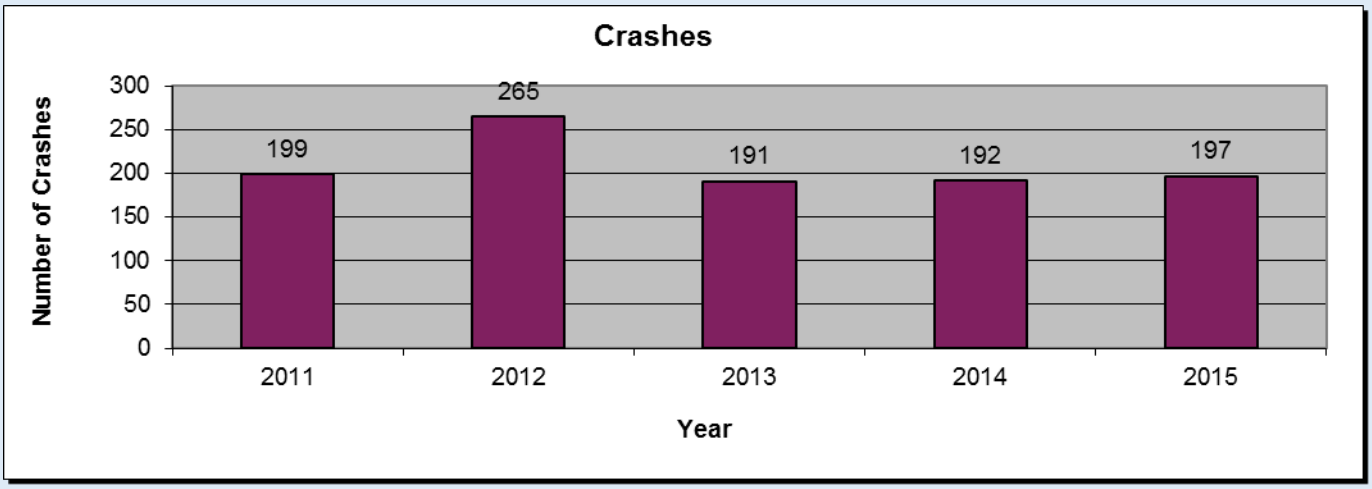

The National Highway Traffic Safety Administration (NHTSA) defines alcohol impairment as any fatal vehicle crashes involving a driver with a blood alcohol concentration (BAC) of 0.08 grams per deciliter (g/dl) or higher.

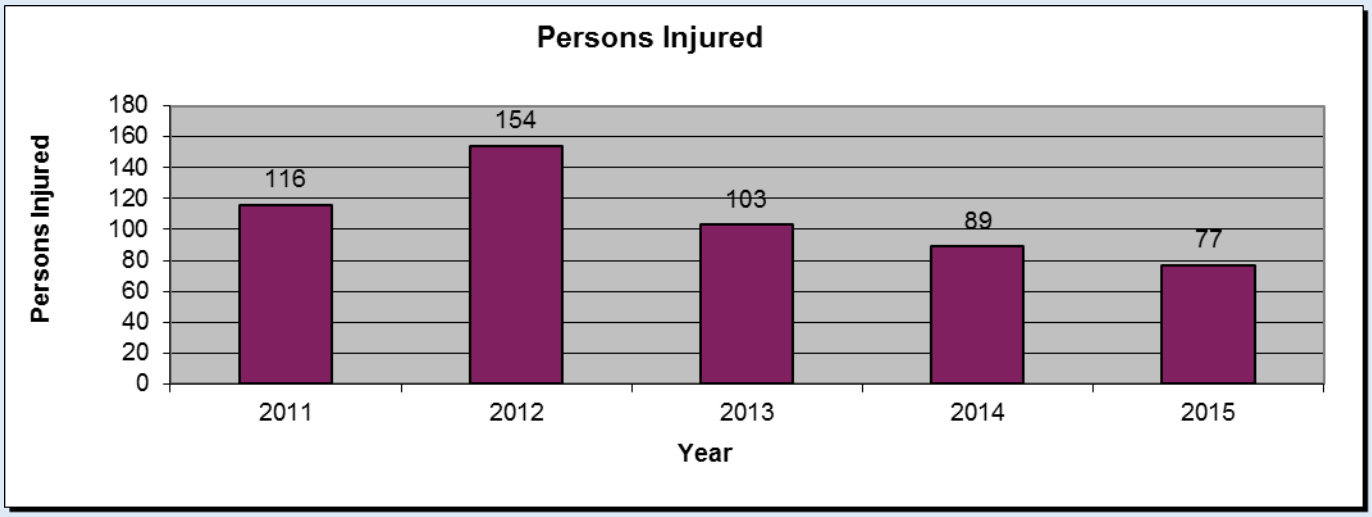
Over the past three years, fewer than ten impaired driving fatalities occurred in Washington County, with just six occurring in 2015. During that time, Washington County has accounted for an average of 4.3% of the State's distracted driving fatalities. There has been a significant decline in serious injuries resulting from such crashes in the county as well, from a high of 20 in 2013 (5.2% of all impaired driving serious injuries) to a low of seven in 2015 (2.0% of all). However, those figures also mean that, in 2015, 35.3% of all fatalities and 15.9% of all serious injuries in Washington County resulted from impaired driving crashes. Correspondingly, impaired driving crashes resulted in 31.1% of all fatalities and 13.2% of all serious injuries in 2015. This shows that Washington County is tracking with the State totals, so impaired driving is a concern but the county is not the worst in the State. Impaired driving arrests relate to driving while impaired by alcohol and/or drugs and several citations are issued at the point of a single arrest. Therefore, all judicial figures related to impaired driving will quantify arrests, not individual citations. Impaired driving arrests have remained fairly steady in Maryland over the past three years, from 23,326 in 2013 to 22,777 in 2014, to 22,051 in 2015. Of those arrests, an average of 1.8% was of older drivers (ages 65+) and 3.9% were of younger drivers (ages 16-20). Washington County had a slight increase from 550 in 2013 to 510 in 2014 to 607 in 2015 which accounted for 2.8% of the State impaired driving arrests in 2015. Of the impaired arrests in the County, an average of 2.0% was of older drivers (ages 65+) and 4.0% were of younger drivers (ages 16-20).

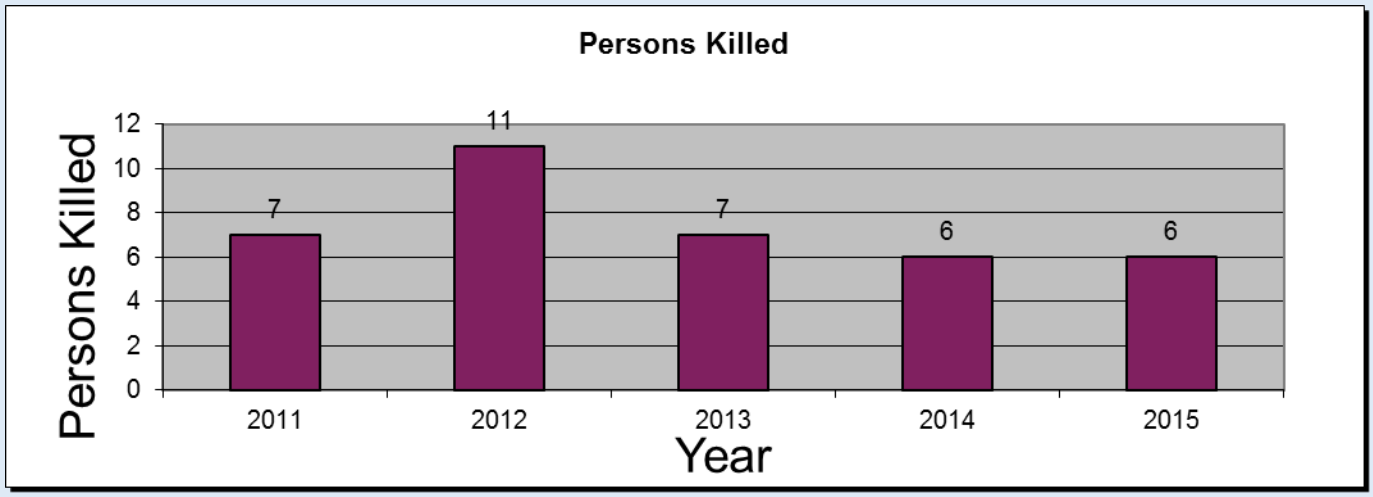

**MARYLAND DEPARTMENT OF TRANSPORTATION**
**Maryland Motor Vehicle Administration**
**Maryland Highway Safety Office**

## Washington Co. Driver Involved Alcohol or Drug Impaired Crash Summary

| | 2011 | 2012 | 2013 | 2014 | 2015 | 5 Year AVG. | % |
|---|---|---|---|---|---|---|---|
| **Fatal Crashes** | 7 | 11 | 7 | 6 | 5 | 7 | 3.4 |
| **Injury Crashes** | 81 | 107 | 75 | 74 | 59 | 79 | 37.9 |
| **Property Damage Crashes** | 111 | 147 | 109 | 112 | 133 | 122 | 58.6 |
| **Total Crashes** | 199 | 265 | 191 | 192 | 197 | 209 | 100.00 |
| | | | | | | | |
| **Total of All Fatalities** | 7 | 11 | 7 | 6 | 6 | 7 | |
| **Total Number Injured** | 116 | 154 | 103 | 89 | 77 | 108 | |

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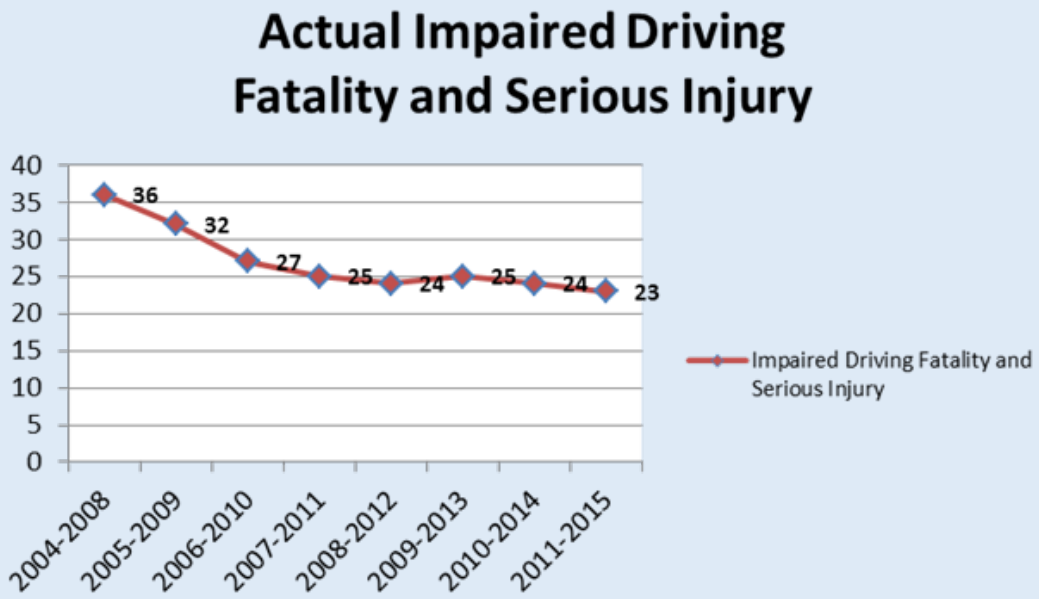
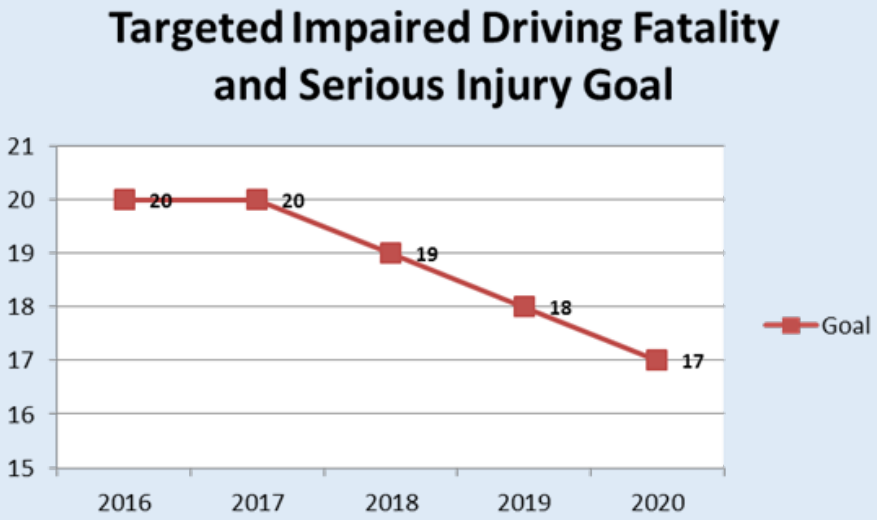



**Impaired Driving Strategies**

1. Improve the availability, quality, collections, and use of **data** to support impaired driving enforcement, adjudication, programs, and initiatives.

2. Enhance and improve **enforcement** of impaired driving laws.

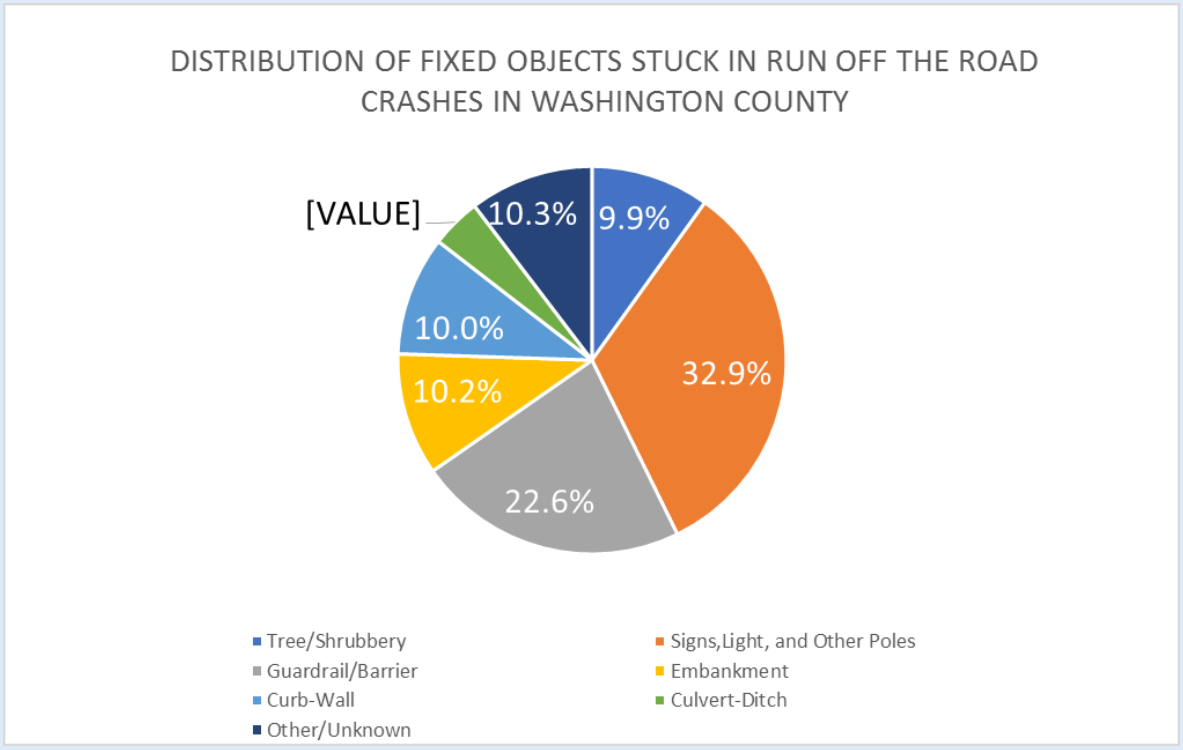
3. Enhance and improve the **prosecution and adjudication** of impaired driving cases.

4. Investigate and foster the use of **technologies and best practices** to support impaired driving countermeasures.

5. Conduct **outreach initiatives** including, but not limited to, education, training, and media programs to reduced impaired driving.

# Highway Infrastructure:

An average of 10 fatalities and 754 serious injuries occurred in crashes involving infrastructure related issues. While work zone crashes are minimal, run-off the roadway and intersection crashes leave an opportunity to improve.



A **Run-Off-the-Road Crash** is defined as a crash where the first event was recorded as striking a fixed object or running off the road, or the location of the crash was reported as off-road or in the median. An average of 8 fatalities and 290 serious injuries per year resulted from run-off-the-road crashes between 2006 and 2015

**Intersection Crashes** are those crashes reported as occurring in an intersection or being intersection-related (i.e., in a traffic situation resulting from an intersection). An average of 2 fatalities and 443 serious injuries per year resulted from intersection-related crashes between 2006 and 2015.

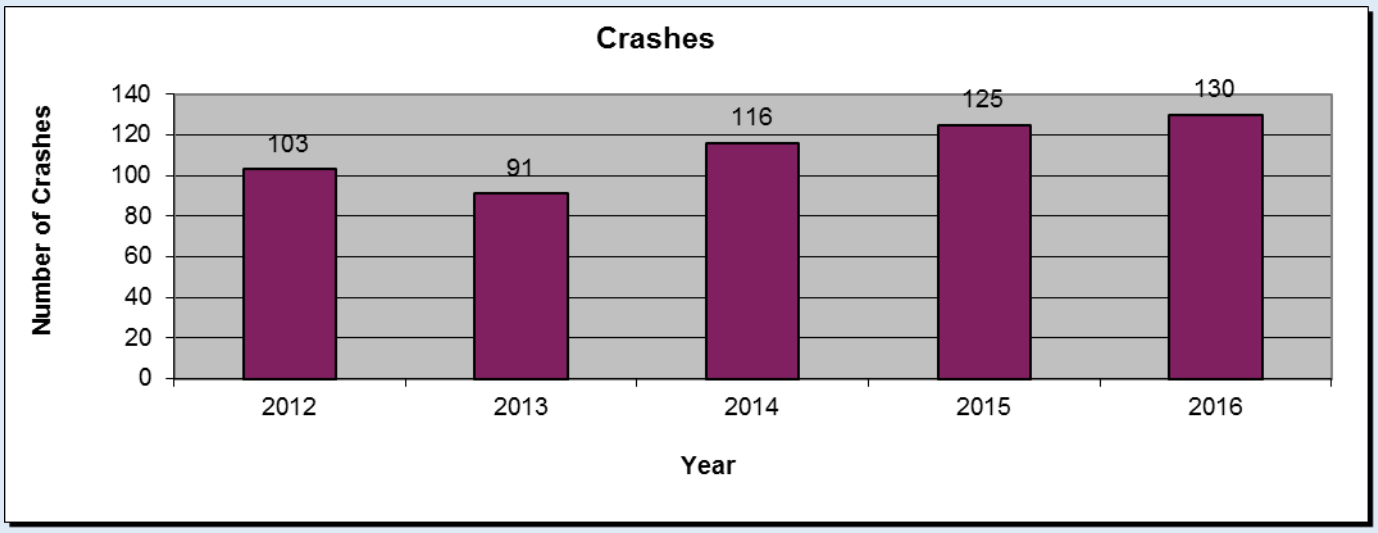
**Work Zone Crashes** are those crashes reported as occurring in a work zone in the standard crash report. They can include construction, maintenance, and utility work zones. Although Washington County has no fatalities resulting from work zone crashes, an average of 20 serious injuries have occurred each year between 2006 and 2015.

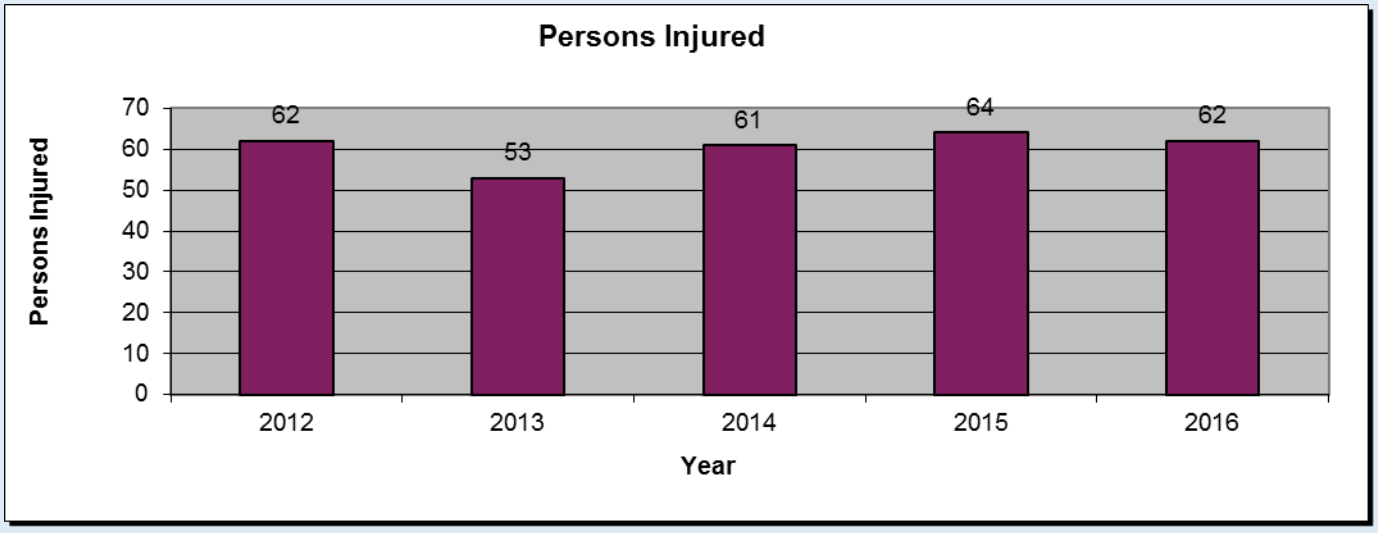


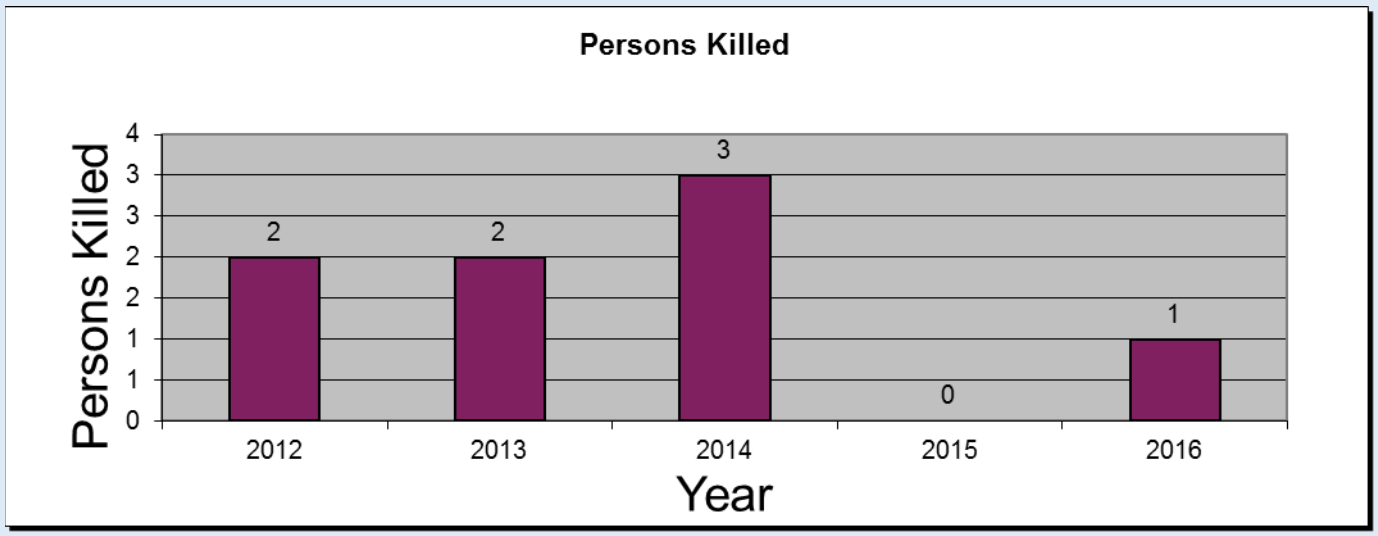
**MARYLAND DEPARTMENT OF TRANSPORTATION**
**Maryland Motor Vehicle Administration**
**Maryland Highway Safety Office**

## IS81
## Crash Summary

| | 2012 | 2013 | 2014 | 2015 | 2016 | 5 Year AVG. | % |
|---|---|---|---|---|---|---|---|
| Fatal Crashes | 2 | 2 | 2 | 0 | 1 | 1 | 1.2 |
| Injury Crashes | 38 | 40 | 44 | 40 | 34 | 39 | 34.7 |
| Property Damage Crashes | 63 | 49 | 70 | 85 | 95 | 72 | 64.1 |
| Total Crashes | 103 | 91 | 116 | 125 | 130 | 113 | 100.0 |
| | | | | | | | |
| Total of All Fatalities | 2 | 2 | 3 | 0 | 1 | 2 | |
| Total Number Injured | 62 | 53 | 61 | 64 | 62 | 60 | |

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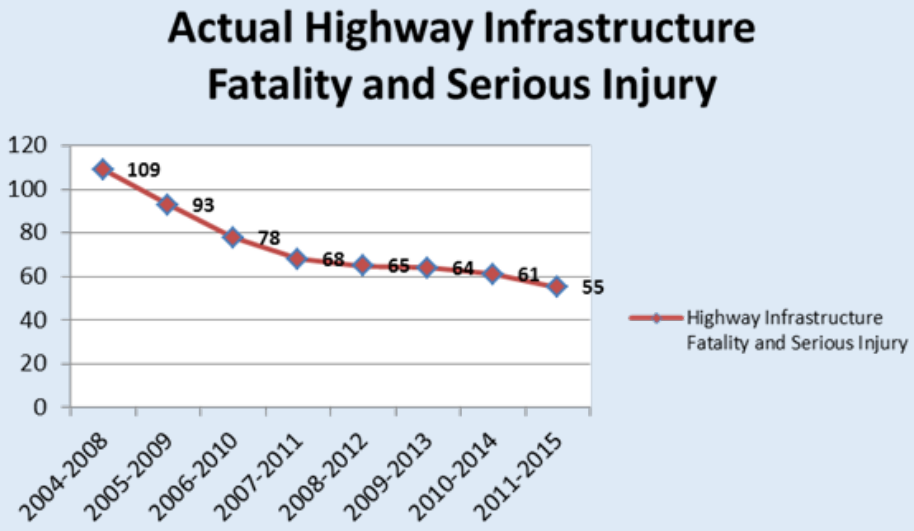


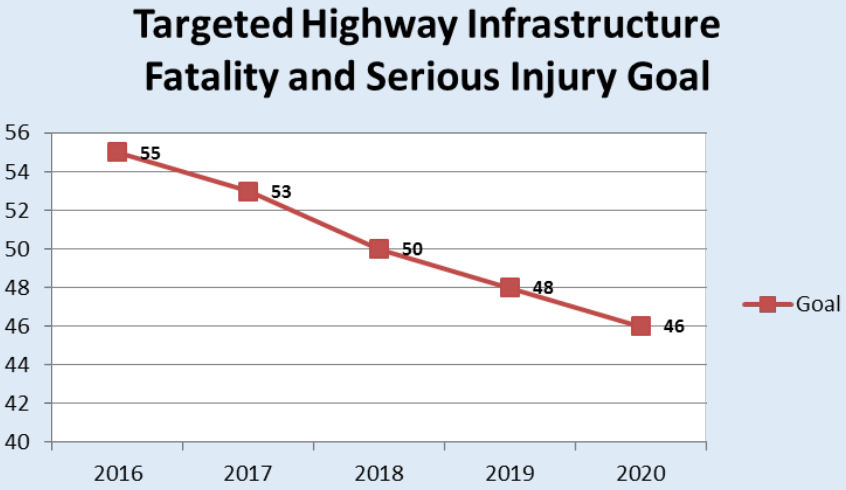


**Highway Infrastructure Strategies**

1. Identify intersections where the Crash Severity Index is high and implement safety improvements.

2. Identify and target safety improvements along corridors where the Crash Severity Index is high and address roadway elements that contribute to crashes.

3. Identify, develop and implement system-wide improvements that address the safety of vulnerable user groups (e.g., bicyclists, pedestrians, motorcyclists, older and younger drivers, etc.

## Implementation and Evaluation:

Each law enforcement agency in Washington County has adopted this Washington County Strategic Highway Safety Plan and will conduct increased traffic enforcement and implement public awareness strategies according to the specific focus areas identified in this Plan.

The Washington County Strategic Highway Safety Plan Committee will work with other State and local partners to conduct public awareness campaigns and identify infrastructure deficiencies that will reduce crashes in the specific focus areas identified in this Plan.

The Washington County Traffic Advisory Council has also adopted this Washington County Strategic Highway Safety Plan. The Washington County Commissioners and other municipal governments have adopted the Washington County Strategic Highway Safety Plan. This Plan will be taken into consideration as there is discussion and actions taken to improve highway safety in Washington County.

## Washington County Strategic Highway Safety Plan Committee Members:

- Sheriff Doug Mullendore, Washington County Sheriff's Office
- Chief Victor Brito, Hagerstown Police Department
- Captain Tom Langston, Hagerstown Police Department
- Lt. Joe George, Maryland State Police, Barrick "O"
- Major Pete Lazich, Patrol Commander, Washington County Sheriff's Office
- Sgt. John Martin, Washington County Sheriff's Office
- Merle Saville, Washington County Engineering and Construction (Traffic Advisory Council Chairman)
- Karie Braniff, Analyst, Washington County Sheriff's Office
- Michael Bible, Law Enforcement Liaison Program Manager at the Maryland Department of Transportation Highway Safety Office
- Chris Perkins, State Highway Administration
- Chief Chuck Stanford, Boonsboro Police Department
- Chief T J Buskirk, Hancock Police Department
- Chief George Knight, Smithsburg Police Department
- Charles Summers, Deputy Director Emergency Management for Washington County.

Board of County Commissioners of Washington County, Maryland

Agenda Report Form

Open Session Item

**SUBJECT:** 2017 Housing Bond Allocation Transfer

**PRESENTATION DATE:** August 22, 2017

**PRESENTATION BY:** Stephen T. Goodrich, Director, Department of Planning and Zoning

**RECOMMENDED MOTION:** Move to approve the transfer of Washington County's 2017 Housing Bond Allocation in the amount of $ 5,078,411.00 to the Community Development Administration for use in issuing housing bonds on behalf of Washington County.

**REPORT-IN-BRIEF:** Each year the State of Maryland invites local governments to partner in a statewide bond pool for first time homebuyers. The pool allows counties to transfer their housing bond allocation to the State to issue bonds to fund housing programs. Washington County has traditionally used this allocation to participate in the Maryland Mortgage program.

**DISCUSSION:** Washington County has been transferring its housing bond allocation to the Community Development Administration (CDA) annually since at least 2007. Generally bond allocation amounts have increased since 2007 but this year's amount is slightly less than 2016. Maximum allowable acquisition costs have been decreased for 2017 by less than 1%. Income limits for participants have been increased for 2017 in both target and non-target areas. The MD DHCD reports purchasing activity in Washington County as 89 units in 2014 ($11,801,595), 76 units in 2015 ($10,360,540), 146 units in 2016 ($20,265,928), and 96 units in 2017 ($13,051,467). Targeted areas in Washington County are within Hagerstown city limits.

**FISCAL IMPACT:** No cost to Washington County

**CONCURRENCES:** N/A

**ALTERNATIVES:** If there is no transfer there will be less money available to make housing loans to Washington County applicants from the Maryland Mortgage Program

**ATTACHMENTS:** DHCD invitation to transfer allocation
Income limits and maximum acquisition costs

**AUDIO/VISUAL NEEDS:** N/A

DHCD
Maryland Department of Housing and Community Development



The Honorable Terry L. Baker
President
Board of Commissioners
Washington County
100 West Wahington Street
Hagerstown, MD 21740

July 26, 2017

Dear President Baker:

The Department of Housing and Community Development ("The Department") invites Washington County to transfer its 2017 housing bond allocation to the Department. By doing this, the Department utilizes local government housing bond allocations to issue bonds to fund housing programs or to issue mortgage credit certificates. (Please note that a mortgage credit certificate may not be used in conjunction with a loan funded with the proceeds from the sale of a tax-exempt mortgage revenue bond issue). The allocation represents the amount of volume cap authority that would have been available to the local government should it choose to issue the bonds itself in order to raise capital for mortgage loans. In prior years, the annual housing bond allocation has been an extremely powerful and successful tool in creating affordable housing opportunities.

In order for the Department to utilize your housing bond allocation, a participating local government must transfer its allocation to the Department in writing on or before Friday, August 18, 2017. The housing bond allocation for your jurisdiction is $5,078,411. Enclosed are two forms for your use in effecting the transfer. The first (Attachment I) is a form letter to be prepared on your letterhead authorizing the transfer of bond allocation to the Department's Community Development Administration (CDA). The second form (Attachment II) should also be completed on your letterhead to indicate how the funds are to be allocated.

We ask your cooperation in transferring your 2017 bond authority to the Department. Attachments I and II must be prepared on your letterhead and be returned no later than Friday, August 18, 2017 to the following address:

DHCD
Maryland Department of Housing and Community Development



Maryland Department of Housing and Community Development

7800 Harkins Road,

Lanham, Maryland 20706

Attn: Karl Metzgar, CDA/Single Family Housing

Attached, for informational purposes only, are Attachment III – Federal Income Limits; Attachment IV – Program Maximum Acquisition Costs; Attachment V – Targeted Areas and Attachment VI - Maryland Mortgage Program Purchase Activity for FY 2014, 2015, 2016 and 2017, as of June 30, 2017. We look forward to your continued support of home ownership opportunities for residents of your County. Should you have any questions or need additional information, please contact Karl Metzgar at 301-429-7826 or by email at karl.metzgar@maryland.gov.

Thank you.

Sincerely,

Maddy Ciulu, Director
Single Family Housing

Enclosures: Attachment I Form Letter for Transfer of Allocation

Attachment II Statement of Conditions for Participation in CDA's Programs

Attachment III Federal Income Limits

Attachment IV Program Maximum Acquisition Costs

Attachment V Targeted Areas

Attachment VI Maryland Mortgage Program Purchase Activity for FY 2014, 2015, 2016 and 2017, as of June 30, 2017.

CC: Kristen Musallam, Deputy Director, Community Development Administration

**FEDERAL INCOME LIMITS 2017 ATTACHMENT III**

income limits

| HOUSEHOLD SIZE | NON-TARGETED AREA | TARGETED AREA |
|---|---|---|
| 1 OR 2 MEMBERS | Baltimore-Columbia-Towson MD MSA[1] **$109,320** (120% of **Area** Median) | Baltimore-Columbia-Towson MD MSA **$111,000** (120% of **Statewide** Median) |
| | Washington, D.C. HMFA[2] **$132,360** (120% of **Area** Median) | Washington, D.C. HMFA **$132,360** (120% of **Area** Median) |
| | St. Mary's County **$99,600** (100% of **Area** Median) | |
| | All other areas of State **$92,500** (100% of **Statewide** Median) | All other areas of State **$111,000** (120% of **Statewide** Median) |
| 3 OR MORE MEMBERS | Baltimore-Columbia-Towson MD MSA **$127,540** (140% of **Area** Median) | Baltimore-Columbia-Towson MD MSA **$129,500** (140% of **Statewide** Median) |
| | Washington, D.C. HMFA **$154,420** (140% of **Area** Median) | Washington, D.C. HMFA **$154,420** (140% of **Area** Median) |
| | St. Mary's County **$114,540** (115% of **Area** Median) | |
| | All other areas of the State **$106,375** (115% of **Statewide** Median) | All other areas of the State **$129,500** (140% of **Statewide** Median |

[1] Counties of Anne Arundel, Baltimore, Carroll, Harford, Howard and Queen Anne's and Baltimore City
[2] Counties of Calvert, Charles, Frederick, Montgomery and Prince George's

**ATTACHMENT IV**

## PROGRAM MAXIMUM ACQUISITION COSTS

| JURISDICTION | Newly Constructed & Existing Homes | |
|---|---|---|
| | Non-Targeted | Targeted |
| Allegany County[1] | | $310,211 |
| Anne Arundel County | $476,471 | |
| Baltimore City[1] | | $582,383 |
| Baltimore County[2] | $476,471 | $582,383 |
| Calvert County | $585,714 | |
| Caroline County[1] | | $310,211 |
| Carroll County | $476,471 | |
| Cecil County | $349,412 | |
| Charles County | $585,714 | |
| Dorchester County[1] | | $310,211 |
| Frederick County | $585,714 | |
| Garrett County[1] | | $310,211 |
| Harford County | $476,471 | |
| Howard County | $476,471 | |
| Kent County[1] | | $327,412 |
| Montgomery County | $585,714 | |
| Prince George's County[2] | $585,714 | $715,872 |

*continued on next page*

**ATTACHMENT IV**

| | | |
|---|---|---|
| **Queen Anne's County** | **$476,471** | |
| **St. Mary's County** | **$319,765** | |
| **Somerset County[1]** | | **$355,882** |
| **Talbot County** | **$352,589** | |
| **Washington County[2]** | **$253,809** | **$310,211** |
| **Wicomico County[2]** | **$291,176** | **$355,882** |
| **Worcester County** | **$291,17** | |

1 Entire jurisdiction is targeted – buyers do not have to be first-time home buyers

2 Jurisdiction contains certain targeted census tracts (refer to Targeted Areas attachment) in which buyers to not have to be first-time home buyers

MARYLAND MORTGAGE PROGRAM

PURCHASE ACTIVITY

FOR

WASHINGTON COUNTY

| | Regular MMP | | Bond portion of HIDP[1] loan | |
|---|---|---|---|---|
| **Fiscal Year** | **#** | **Loan Amount** | **#** | **Loan Amount** |
| **2014** | **89** | **$11,801,595** | **0** | **$0** |
| **2015** | **76** | **$10,360,540** | **0** | **$0** |
| **2016** | **146** | **$20,265,928** | **0** | **$0** |
| **2017[1]** | **96** | **$13,051,467** | **0** | **$0** |

1 The Homeownership for Individuals with Disabilities Program (HIDP) blends bond funds with State Funds

Board of County Commissioners of Washington County, Maryland

Agenda Report Form

Open Session Item

**SUBJECT: Intergovernmental Cooperative Purchase (PUR-1358) for the Highway Department of Three (3) Dump Trucks**

**PRESENTATION DATE:** August 22, 2017

**PRESENTATION BY:** Rick Curry, CPPO, Director - Purchasing Department and Ed Plank, Director – Highway Department

**RECOMMENDED MOTION:** Move to authorize by Resolution, the Highway Department to purchase three (3) 4x2 Mack dumps from ***Potomac Truck Center, Inc.*** of Bladensburg, MD. The cost of each truck is $183,500.00 (extended warranty $3,200.00) for a total amount of $560,100.00 and to utilize another jurisdiction's contract (#4400003267) that was awarded by Howard County, Maryland - Office of Purchasing.

**REPORT-IN-BRIEF:** The Highway Department is requesting to purchase three (3) dump trucks to replace vehicles that are between fourteen (14) to sixteen (16) years old and exceed the County's Vehicle and Equipment Types and Usage Guidelines. The County's replacement guidelines for vehicles greater than 33,000 lbs. GVWR is recommended at a ten (10) year economic life cycle. The replaced vehicles will be advertised on GovDeals.com for auctioning.

The Code of Public Laws of Washington County, Maryland (the Public Local Laws) §1-106.3 provides that the Board of County Commissioners may procure goods and services through a contract entered into by another governmental entity, in accordance with the terms of the contract, regardless of whether the County was a party to the original contract. The government of Howard County, Maryland - Office of Purchasing took the lead in soliciting the resulting agreement. If the Board of County Commissioners determines that participation by Washington County would result in cost benefits or administrative efficiencies, it could approve the purchase of this service in accordance with the Public Local Laws referenced above by resolving that participation would result in cost benefits or in administrative efficiencies.

The County will benefit with direct cost savings in the purchase of this service because of the economies of scale this buying group leveraged. I am confident that any bid received as a result of an independent County solicitation would exceed the spend savings that Howard County, Maryland - Office of Purchasing provides through this agreement. Additionally, the County will realize savings through administrative efficiencies as a result of not preparing, soliciting and evaluating a bid. This savings/cost avoidance would, I believe, be significant.

**DISCUSSION:** N/A

**FISCAL IMPACT:** Funds are budgeted in the Highway Department's Capital Improvement Plan (CIP) account (EQP042) in the amount of $1,020,000.00.

**CONCURRENCES:** N/A

**ALTERNATIVES:**

1. Process a formal bid and the County could possibly incur a higher cost for the purchase, or
2. Do not award the purchase of the dump trucks.

**ATTACHMENTS:** Potomac Mack Sales and Services, Inc. quote.

**AUDIO/VISUAL NEEDS:** N/A

# NEW TRUCK QUOTATION

January 0, 1900

0 Mack 0

***Quantity:*** 1
*Quotation Reference:* 0

*Prepared for:* **Washington County**

## PRICING SUMMARY

| | | |
|---|---|---|
| Base Selling Price | | **$183,500.00** |
| F.R.E.T. | | $0.00 |
| Title Tax | 0% | $0.00 |
| Title Fee | | $0.00 |
| Lien Fee | | $0.00 |
| Tag Fee | | $0.00 |
| **Sub-Total** | | **$183,500.00** |
| Extended Warranties | | $3,200.00 |
| **Total Sale Price** | | **$186,700.00** |
| **Total Price** | **1 Vehicles** | **$186,700.00** |
| *Minus Trade Value(s)* | | *$0.00* |
| *Minus Customer Deposit* | | *$0.00* |
| **Total Due at Signing** | | **$186,700.00** |

| *Extended Warranties Included:* |
|---|
| Engine Warranty |
| EATS |
| Starter |
| 0 |
| 0 |
| 0 |

| *Options Included in Price:* |
|---|
| 0 |
| J&J Body and Equipment |
| 0 |
| Howard County Contract invoice +$420 |
| 0 |
| 0 |
| 0 |
| 0 |
| 0 |
| 0 |
| 0 |
| 0 |
| 0 |
| 0 |

Notes: Please note that price INCLUDES the Howard County Invoice Plus amount required to ride on the contract. This is total price for contract ride on.

*Prepared by:* 0


POTOMAC TRUCK CENTER

**Potomac Truck Center, Inc.**
3371 Kenilworth Ave, Bladensburg, MD 20710
Phone: (301) 864-2000
Fax: (301) 277-7211
Web: www.BPTRUCKCENTERS.COM

| | | | |
|---|---|---|---|
| VIN: | 1M2AX04C4HM033698 | Work Order Number: | 54624 |
| Chassis ID: | M748 33698 | Printed: | 7/14/2017 9:07 AM |
| Model: | GU | | |
| Reg. Number: | | | |

## Fault tracing : ECM - P24A0 - 00

| Start time: | End Time: | Status: | Work Order: | User ID: | Partner ID: |
|---|---|---|---|---|---|
| 7/14/2017 9:06:26 AM | | Session ID: M748033698140830245 | 54624 | XW18622 | US5278 |

## DTC Readout :

| Start time: | Session ID: | Work Order: | User ID: | Partner ID: |
|---|---|---|---|---|
| 7/14/2017 9:04:40 AM | M748033698140830245 | 54624 | XW18622 | US5278 |

| Vehicle/Machine Time: | Engine hours: |
|---|---|
| - | 709.7662 |

| Control Unit | DTC | Status | Count | First Occurrence | Last Occurrence |
|---|---|---|---|---|---|
| Engine Control Module (EMS) | P050700: Idle Control System - RPM Higher Than Expected, No additional information | Inactive | 1 | 6/28/2017 12:04:22 AM | 6/28/2017 12:04:50 AM |
| Engine Control Module (EMS) | P24A000: Closed Loop DPF Regeneration Control At Limit - Temperature Too Low, No additional information | Active | 1 | 6/30/2017 3:50:08 AM | 6/30/2017 6:38:36 AM |
| Engine ECU (MID 128) | SPN 0: , FMI 0: Data valid but above normal operational range | Active | 0 | | |
| Vehicle ECU (MID 144) | PSID 200: Data Link, MID128, FMI 9: Abnormal update rate | Inactive | 1 | 6/19/2017 3:24:00 AM | 6/19/2017 3:24:00 AM |

## Control Unit Information :

| Start time: | Session ID: | Work Order: | User ID: | Partner ID: |
|---|---|---|---|---|
| 7/14/2017 8:30:24 AM | M748033698140830245 | 54624 | XW18622 | US5278 |

## LVD Readout : Automatic

| Start time: | Session ID: | Work Order: | User ID: | Partner ID: |
|---|---|---|---|---|
| 7/14/2017 8:30:24 AM | M748033698140830245 | 54624 | XW18622 | US5278 |

## DTC Readout :

| Start time: | Session ID: | Work Order: | User ID: | Partner ID: |
|---|---|---|---|---|
| 7/14/2017 8:29:44 AM | M748033698140830245 | 54624 | XW18622 | US5278 |

MACK®

## Vehicle Summary

| | CUSTOMER/VEHICLE INFO | | Description |
|---|---|---|---|
| | A19039 | VEHICLE MODEL YEAR | 2018 MODEL YEAR |
| S | PB1081 | PRICE BOOK LEVEL | 2018B Pricebook |
| S | 002BR2 | CHASSIS (BASE MODEL) | GU712 R - 4x2 DAYCAB |
| S | MP2001 | CUSTOMER FLEET SIZE | DEALER FLEET WITH LESS THAN 25 VEHICLES IN OWN FLEET OF ANY VEHICLE BRAND |
| S | 013001 | TYPE OF SERVICE | COMMERCIAL |
| S | 505015 | INITIAL REGISTRATION LOCATION | ALL 50 STATES, CARB ENGINE EMISSION (US17) |
| S | 534014 | LANGUAGE-PUBS/DECAL/SIGNS | ENGLISH |
| S | DHX10X | ROAD CONDITION | WELL MAINTAINED SURFACED ROADS >95% DRIVING DISTANCE |
| | 0050L5 | VEHICLE USE & BODY/TRAILER TYPE | DUMP TRUCK |
| | DKXG2X | GROSS COMBINATION WEIGHT | 80,000 LB (36 TONNES) GROSS COMBINATION WEIGHT |
| | QCXB1X | TOPOGRAPHY | GRADES <6% GREATER THAN 98% OF DRIVING DISTANCE MAX GRADE 16% |
| S | E1BD1X | AMBIENT TEMP UPPER LIMIT (GTA) | AMBIENT TEMPERATURE HOT. WARMER THAN 104 F (40 C) ALLOWED UP TO 25 HOURS PER YEAR |
| | 032A89 | TERRAIN GRADE | ON-OFF HIGHWAY, STARTING GRADES<18% |
| | 033A10 | LOADING SURFACE | CONCRETE LOADING AND / OR UNLOADING SURFACE |
| | 0342A2 | VEHICLE VOCATION | CONSTRUCTION SERVICE |

| | APPLICATION PACKAGES | | Description |
|---|---|---|---|
| S | MPR0DR | MACK PACKAGE RAWHIDE | WITHOUT MACK RAWHIDE PACKAGE |
| S | PK7001 | GRANITE AF CONFIG. PKG. | W/O GRANITE AF CONFIG. PKG. |
| S | 023AB3 | APPLICATION RECOMMENDATIONS | WITHOUT SPECIAL SALES PACKAGE |
| S | 022001 | PILOT INSPECTION | NO PILOT REQUESTED |

| | ENGINE/TRANSMISSIONS | | Description |
|---|---|---|---|
| | 1000V0 | ENGINE PACKAGE | MP7-375M MACK 375HP @ 1500-1900 RPM (PEAK) 2100 RPM (GOV) 1360 LB-FT, US'17 |
| S | Q1CA1X | GEAR SELECTION TUNING | BASIC, GEAR-SELECTION TUNING |
| | 136AS6 | TRANSMISSION | 4500 RDS 6 SP-ALLISON RUGGED DUTY SERIES GEN 5 W/PROGNOSTICS |
| | RSXWCX | TRANSMISSION ELECTRONICS | ALLISON VOC PKG# 223 RDS ON-OFF HIGHWAY (2ND REVERSE CAPABLE), PBAN, AFRI |
| S | U6AA1X | ENGINE GOVERNOR TYPE | ENGINE GOVERNOR TYPE MIN-MAX |

| | EXHAUST/EMISSIONS | | Description |
|---|---|---|---|
| S | CIRAA4 | CARB 2008 IDLE REGULATION | IDLE EMISSION CERTIFICATION - CARB 08 (WITH DECAL LOCATED ON LOWER LH CORNER OF DRIVER DOOR |

| | | | |
|---|---|---|---|
| S | DPF04F | DPF DIESEL PARTICULATE FILTER | CLEARTECH ONE BOX E.A.T.S. RH SIDE UNDER CAB US17 |
| | 8NAA1X | DPF COVER | DPF COVER, PAINTED STEEL |
| | 130AD7 | EXHAUST | SINGLE VERTICAL RIGHT SIDE CAB MOUNTED, LOWER VENTURI DIFFUSER, TURNED END |
| S | 5BAAAX | EXHAUST HEAT SHIELD TYPE | EXHAUST HEAT SHIELD TYPE, BASIC |
| | KRXAPX | EXHAUST STACK HEIGHT | 9' 6" FROM GROUND |
| | Q0AC1X | EXHAUST SYSTEM MATERIAL FINISH | SINGLE, BRIGHT FINISH HEAT SHIELD, STACK AND SCR COVER (IF EQUIPPED) |
| | DF10M1 | DEF TANK | 11.8 GALLON (45 L) 22" LEFT SIDE FRAME MTD |
| | U6BA1X | DEF TANK COVER | PAINTED FINISH DEF TANK COVER |
| S | 78AC5X | EMISSION ON BOARD DIAG CONTROL | EMISSION OBD, DISPLAY ONLY, USA2016 |

| ENGINE EQUIPMENT | | | Description |
|---|---|---|---|
| S | 125AA4 | AIR CLEANER | 11" x 30" (279 mm x 762 mm) UNDER HOOD SINGLE ELEMENT DRY TYPE W/AIR INTAKE FROM BOTH SIDES OF HOOD |
| | 1VAADX | AIR INTAKE SOURCE | INSIDE/OUTSIDE AIR INTAKE W/IN-CAB CONTROL FOR SNOWPLOWS |
| S | 121AA5 | BUG SCREEN | BLACK ALUMINUM MOUNTED BEHIND GRILLE, WITHOUT WINTER FRONT COVER |
| S | 113AA6 | AIR COMPRESSOR | MERITOR/WABCO 318 18.7 CFM |
| S | MBXA1X | PRIMARY FUEL FILTER POSITION (CA) | STANDARD FUEL FILTER POSITION |
| | 132AB6 | ALTERNATOR | DELCO 12V 165A (36SI) BRUSHLESS |
| | 316AA7 | BATTERIES | (3) MACK 12V 1000/3000 CCA THREADED STUD TYPE |
| | 508AA4 | COOLING PERFORMANCE | 930 SQUARE INCH RADIATOR |
| S | 119AC9 | COOLANT PROTECTION | TO -34 DEGREES F (-37 DEGREES C) |
| S | HWXA1X | COOLANT FILTER / CONDITIONER | MACK COOLANT CONDITIONER |
| S | 118AA5 | FAN DRIVE | BEHR FAN WITH BEHR ELECTRONICALLY MODULATED FAN DRIVE |
| S | 110AA5 | ENGINE BRAKE | MACK MP7 POWERLEASH |
| S | 293AA2 | FUEL-WATER SEPARATOR | MACK W/MANUAL DRAIN VALVE (INTEGRAL W/PRIMARY FUEL FILTER) |
| | J7XZ1X | AUX. FUEL SYSTEM EQUIPMENT | WITHOUT AUXILLIARY FUEL HEATING |
| S | E8XZ1X | FUEL EQUIPMENT WATER HEATER (CA) | W/O FUEL HEATER |
| | 318AA3 | BATTERY DISCONNECT SWITCH | FLAMING RIVER BIG SWITCH WIRED TO POSITIVE SIDE |
| | 393AB0 | BATTERY BOX - MOUNTING | RIGHT HAND BEHIND SCR |
| S | L5XA1X | BATTERY BOX COVER | MOLDED PLASTIC |
| S | LLXZ1X | EMERGENCY START STUDS | W/O EMERGENCY STARTING RECEPT. |
| S | 124AA3 | HOSES - RADIATOR/HEATER | MACK BRAND EPDM RADIATOR & HEATER HOSES |
| S | NCXA5X | STARTER | 12 VOLT DELCO 39MT-MXT |
| S | QHXC1X | OIL PAN | OIL PAN |
| S | 36AZ1X | TETHER DEV PKG, CAPS & COVERS | W/O TETHER DEVICE |
| | 5NXA1X | ENGINE BLOCK HEATER | 120V 1500 WATT ENGINE BLOCK HEATER |
| S | EFXZ1X | ENGINE OIL PAN HEATER | W/O OIL PAN HEATER OPTIONW/O OIL PAN HEATER |
| S | NDXZ1X | ENGINE STARTING AID | W/O ENGINE COLD START AID |
| S | HZXZ1X | ENGINE OIL DRAIN KIT | W/O OIL CHANGE SYSTEM |

| | | | |
|---|---|---|---|
| S | 2BAZ1X | ALCOHOL EVAPORATOR (CA) | W/O ALCOHOL EVAPORATOR |
| | MOXAAX | BATTERY SHOCK PADS | SHOCK PADS UNDER BATTERIES |

| CLUTCH/TRANS EQUIPMENT | | | Description |
|---|---|---|---|
| | 492007 | GEAR SHIFTER | ALLISON DASH MTD SHIFTER W/NEUTRAL TO RANGE INHIBIT (HD SERIES) |
| | 133AA1 | CLUTCH | OMIT CLUTCH |
| | 195AB0 | DRIVELINE - MAIN | MERITOR 18 MXL "XTENDED LUBE" |
| S | IUXZ1X | CLUTCH ACTUATION SYSTEM | W/O AIR ASSIST |
| | 7RXAEX | LUBRICANTS, TRANSMISSION | TRANSYND SYNTHETIC LUBE FOR ALLISON TRANS |
| | 2XAZ1X | CLUTCH PEDAL PAD | W/O CLUTCH PEDAL |
| | 139AA7 | TRANSMISSION OIL COOLER | FURNISH FOR ALLISON TRANSMISSION W/DIRECT MOUNT COOLER |
| S | 5DAZ1X | TRANSMISSION DUST PROOFING | W/O TRANSMISSION DUSTPROOFING |
| | 83AA1X | PROP SHAFT BEARING GUARD | DRIVESHAFT GUARD FOR CENTER BEARING |
| S | 76AA1X | PROPELLR SHAFT MAIN, UNVSL JNT | PROPELLER SHAFT MAIN, UNIVERSAL JOINT HALF-ROUND TYPE |
| | 3IAZ1X | HILL START ASSIST | W/O GRADE GRIPPER |
| S | RCXB1X | BELL HOUSING | ALUMINUM |
| S | RGXZ1X | CLUTCH BRAKE | W/O CLUTCH BRAKE |
| | RBXZ1X | CLUTCH LUBE LINE | W/O LUBRICATION FITTING OPTION |
| | 442022 | TRANSMISSION TORQUE CONVERTER | FURNISH TC541 FOR USE W/ALLISON (HD) SERIES WORLD TRANSMISSION |
| | D3BA1X | TRANSMISSION ADAPTATION RING | TRANSMISSION ADAPTATION RING |
| | 6VAZ1X | ENGINE START CONDITION | W/O CLUTCH STARTING SWITCH OPTION |
| | M05015 | TRANS SHIFT MODE POINTS | W/O TRANSMISSION SHIFT SETTINGS |
| S | U7AZ1X | TRANSMISSION PROTECTION | WITHOUT TRANSMISSION PROTECTION |
| S | M08038 | ECONO ROLL | ECONO ROLL DISABLE mDRIVE (REQUIRED FOR ALL OTHER TRANSMISSIONS) |
| | 6SAZ1X | TRANSMISSION KICK-DOWN MODE | MACKCELLERATOR DISABLE |
| S | N1DZ1X | PRE-VIEW TOPOGRAPHY | WITHOUT MACK PREDICTIVE CRUISE |

| FRONT AXLE EQUIPMENT | | | Description |
|---|---|---|---|
| | 240AA3 | FRONT AXLE | 20000# (9072kg) MACK FXL20 WIDE PIVOT CENTER STRAIGHT SPINDLE/UNITIZED BEARINGS |
| | 244AB5 | SPRINGS - FRONT | MACK TAPERLEAF HD 20000# (9072kg) GROUND LOAD RATING |
| S | 7OBB1X | BRAKE REGULATION | BRAKE REGULATION, STOPPING DISTANCE 94M (310FT) |
| | 241081 | FRONT AXLE BRAKES | MERITOR "S" CAM TYPE 16.5" x 6" Q+ |
| | U3XA1X | BRAKE, FRONT | CAST IRON BRAKEDRUM, FRONT AXLE |
| | LQXABX | BRAKE LINING MATERIAL FRONT | MERITOR R403 BRAKE LINING. |
| | UDXA1X | FRONT AXLE BRAKE DUST SHIELD | FURNISH |
| S | V7AD1X | FRONT BRAKE CHAMBER MFG. | FRONT BRAKE CHAMBER MANUFACTURER, MGM |
| S | U0AA1X | FRONT BRAKE ADJ. MANUFACTURE | HALDEX - AUTOMATIC |
| | O5BD1X | FRONT BRAKE CHAMBER SIZE | FRONT BRAKE CHAMBER 24SQ INCHES (SERVICE) |

| | | | |
|---|---|---|---|
| S | YHXZ1X | **FRONT SPRING BIAS** | WITHOUT FRONT SPRING BIAS (EQUAL STIFFNESS L/R) |
| | 0KXA1X | **HUB MATERIAL, FRONT** | FERROUS |
| | 1BXBDX | **HUB OIL SEAL, FRONT** | FAG SCHAEFFLER, FRONT GREASE SEAL |
| S | K4AAAX | **SPINDLE NUTS, FRONT** | STANDARD F.A. SPINDLE NUTS |
| S | 1KAA1X | **SHOCK ABSORBER, FRONT** | DOUBLE ACTING TYPE |
| | 245AB0 | **STEERING** | SHEPPARD SD110 + HD94 |
| | 7VXC1X | **LUBRICANTS, FRONT AXLE** | PETROLEUM/SYNTHETIC (50/50) OIL FRONT AXLE |

| REAR AXLE EQUIPMENT | | | Description |
|---|---|---|---|
| S | 252AA5 | **REAR AXLE - SINGLE** | RA23R 23000 LB-MACK 10400 KG |
| S | 6MAA1X | **REAR AXLE CASING WIDTH** | W/O WIDE TRACK AXLE OPTION |
| S | R4XZ1X | **LUBE PUMP, REAR AXLE** | W/O LUBE PUMP AND FILTER |
| S | 018AA4 | **CARRIER - REAR AXLE** | CRD151 (FOR RA23R AXLE) |
| | TAXAXX | **REAR AXLE RATIO** | 5.66 RATIO |
| | 260AK0 | **REAR SUSPENSION - SINGLE** | 23000# MULTILEAF SPRINGS, STANDARD SPRING THICKNESS |
| S | 5MAZ1X | **BREATHER FILTER (rear axle)** | WITHOUT BREATHER FILTER RELOCATION |
| S | ZAX99X | **SUSPENSION LEVELLING DEVICE** | W/O AIR SUSP HEIGHT CONTROL |
| | J6DZ1X | **AIR SUSPENSION DUMP WARNING** | WITHOUT AIR SUSPENSION DUMP WARNING |
| | YVXZ1X | **REAR SHOCK ABSORBER** | W/O REAR SHOCK ABSORBERS |
| | XYXZ1X | **TRANSVERSE TORQUE RODS, R SUSP** | WITHOUT TRANSVERSE TORQUE RODS |
| S | 253AA4 | **BRAKES - REAR** | MERITOR "S" CAM 16.5"x7" (419x178 mm) Q+ |
| S | U4XA1X | **BRAKE DRUMS/ROTORS - REAR** | CAST IRON BRAKE DRUMS |
| S | U1AA1X | **REAR BRAKE ADJ MANUFACTURE** | HALDEX - AUTOMATIC |
| S | V1AB1X | **REAR BRAKE CHAMBER SIZE** | REAR SPRING BRAKE CHAMBERS 30/30 TYPE |
| | UEXA1X | **DRIVE AXLE BRAKE DUST SHIELD** | FURNISH |
| | MAXCAX | **BRAKE LINING MATERIAL DRIVE** | ABEX 931-162 (MERITOR R301) (REAR EACH AXLE 23,000LBS MAX) |
| | 0LXI5X | **HUB MATERIAL, DRIVE** | IRON PRESET REAR HUB W/INTEGRATED SPINDLE NUT |
| | 1CXI2X | **HUB OIL SEAL, DRIVE** | PREMIUM HUB OIL REAR SEAL |
| S | N2AE1X | **SPINDLE NUTS, MAIN AXLE** | SPINDLE NUTS, MAIN AXLE, INTERGRATED |
| S | 3LAZ1X | **POWER DIVIDER LOCKOUT** | WITHOUT POWER DIVIDER |
| | 7WXB1X | **LUBRICANTS, REAR AXLE(s)** | 75W - 90 (SYNTHETIC LUBRICANT) |
| S | 300AD0 | **SPRING BRAKE CHAMBERS - VENDOR** | MGM MODEL TR-T; TAMPER-RESISTANT BRAKE CHAMBERS |
| | 254AB4 | **TRACTION DIFFERENTIAL** | DRIVER CONTROLLED INTER WHEEL DIFFERENTIAL LOCK FRT RR AXLE, MANUAL AIR VALVE W/WARNING LIGHT. |
| S | 9GAAAX | **ABS SENSOR & MODULATOR** | 4S/4M SYSTEM REAR WHEEL END SENSORS |
| S | 698AA5 | **ANTI-LOCK BRAKE SYSTEM** | BENDIX WITH TRACTION CONTROL |
| S | URXD1X | **BRAKE VALVE VERSION** | BENDIX SWITCHES AND VALVES WHERE POSSIBLE |
| S | H9CZ1X | **TRACTION CONTROL** | W/O AUTOMATIC TRACTION CONTROL (ATC) DISABLE SWITCH |

DISABLE

| | PUSHER/TAG AXLE EQUIPMENT | | Description |
|---|---|---|---|
| | MAC01C | AUXILIARY AXLE CONTROLS | WITHOUT AUXILIARY AXLE CONTROLS |
| S | UFXZ1X | TRAIL. AXLE BRAKE DUST SHIELD | TRAILING BRAKES WITHOUT DUST SHIELDS |
| S | 9GDZ1X | AUX AXLE CTRL VALVE LOCATION | WITHOUT AUXILIARY AXLE CONTROL VALVE LOCATION |

| | FRAME EQUIPMENT/FUEL TANKS | | Description |
|---|---|---|---|
| | 271180 | WHEELBASE | 180" |
| | 374057 | AF (OVERHANG) | 57" |
| | 274AA8 | FRAME RAILS | STEEL - 300MM X 90MM X 11.1MM -- (11.81" X 3.54" X 0.437" ) |
| S | 7TXZ1X | RUST PROTECTION (for frame), ADDITIONAL (CA) | W/O RUST PREVENTATIVE OPTION |
| | Z9XZ1X | FRAME INNER LINER | WITHOUT FRAME REINFORCEMENT - INSIDE |
| S | 6CBZ1X | FRAME OUTER LINER (CA) | WITHOUT FRAME REINFORCEMENT - OUTSIDE |
| | 5CAZ1X | FRONT FRAME EXT. (BOLTED ON) | W/O FRONT FRAME EXTENSION |
| | A0XF3X | FRONT FRAME LENGTH | Bumper Position Extended 20" (snow) |
| S | 281AA5 | CROSSMEMBERS | BOC AND INTERMEDIATE(S) STEEL HD BACK-TO-BACK CHANNEL |
| S | Q9AZ1X | FRAME RAIL FREE SPACE | W/O FRAME RAIL CLEARANCE |
| S | R0AZ1X | FUEL TANK POLISH OPTION | W/O BRIGHT FINISH FUEL TANKS |
| S | Q5AA1X | REAR CROSSMEMBER OPTIONS | FURNISH STANDARD STEEL CLOSING REAR CROSSMEMBER |
| S | X6XA1X | REAR FRAME TREATMENT | WITHOUT TAPERED FRAME RAIL ENDS |
| S | 69XZ1X | MUDFLAP HANGERS, REAR AXLE | W/O REAR MUD FLAP HANGER BRKTS |
| S | 67XZ1X | MUDFLAP TYPE, REAR AXLE | W/O REAR MUD FLAPS |
| S | 2HXA1X | MUDFLAP, FRONT AXLE | BLACK POLYARMOUR (NO NAME TO APPEAR ON FLAP) (NOT ANTI-SPRAY TYPE) |
| S | 4DXM9X | FRONT BUMPER | EXTENDED-SWEPT BACK-STEEL |
| S | 5FXZ1X | CAB GUARD, FRONT | W/O RADIATOR GUARD |
| S | 5EXZ1X | GUARD, UNDER ENGINE BAYT | WITHOUT GUARD |
| | AXXZ1X | AUX CROSSM. IN REAR OVERHANG | W/O OPTIONAL CROSSMEMBERS BEHIND REAR AXLE/BOGIE |
| | 4EXG1X | TOWING DEVICE, FRONT | HOOKS |
| S | 6NXZ1X | TOWING COUPLING | W/O REAR TOWING DEVICE |
| | 6PXD1X | TOWING DEVICE,REAR | HOOKS - FRAME MOUNTED |
| | 288AD8 | FUEL TANK - LH | 88 GALLON (333 L) 22" ALUMINUM D-SHAPE |
| S | 2RAA1X | FUEL LEVEL SENDER UNIT, LIQUID | BASIC FUEL LEVEL SENDER MOUNTED ON L.H TANK |
| S | 290AA1 | FUEL TANK - RH | OMIT RH STANDARD |
| S | 7HX99X | TOOLBOX CHASSIS | W/O TOOL BOX |
| S | JHXB1X | FUEL HOSES, LIQUID | BRAIDED HOSE |
| S | 852062 | FILLER NECK SCREENS | W/O FILLER NECK SCREEN OPTION |
| | 12AA1X | FUEL LINE OPTIONS, LIQUID | W/O FUEL LINE OPTION |

| | | | |
|---|---|---|---|
| S | KFXA1X | **FUEL TANK CAP** | NON-LOCKABLE FUEL TANK CAP |
| S | 223AA1 | **STEPS (BRIGHT) - FUEL TANK** | W/O BRIGHT FINISH STEPS AND STRAPS PACKAGE |
| S | 464AA1 | **QUARTER FENDERS** | W/O QUARTER FENDERS |
| S | I7XZ1X | **ISOLATE TANK FROM FUEL SYSTEM** | W/O ISOLATED TANK(S) |

| AIR/BRAKE | | | Description |
|---|---|---|---|
| S | VHXEDX | **AIR DRYER - MANUFACTURER** | WABCO AIR DR, 1200UP W/ T CUT OFF VALVE, W COALESC OIL FILTER, HEATED |
| | UWXE1X | **AIRTANK DRAIN VALVE** | AUTOMATIC DRAIN VALVE, HEATED, ON SUPPLY TANK, W/LANYARDS ON ALL OTHER TANKS |
| | U2XA1X | **AIRTANK MATERIAL** | ALUMINUM, STANDARD FINISH |
| S | KOXA1X | **AIR DRYER POSITION (CA)** | W/O RELOCATION OPTION |
| S | 3MBZ1X | **PARK BRAKE ALARM (CA)** | W/O PARK BRAKE ALARM |
| | 1JAABX | **PARKING BRAKE VALVE** | TWO (2) VALVE DUAL BRAKE SYSTEM - TRAILER SUPPLY AND TRACTOR-TRAILER PARK |
| | 141AD7 | **RELOCATE AIR RESERVOIRS** | MANUAL SOLUTION FOR IN-FRAME AIR RESERVOIR LOCATION- UNDER BATT.BOX & BETWEEN FRAME RAILS |
| | VSXZ1X | **AUXILLIARY AIRTANK** | W/O INCREASED AIR RESERVOIR CAPACITY |

| ELECTRICAL | | | Description |
|---|---|---|---|
| S | Q8CH1X | **CHASSIS WIRING HARNESS CASING** | CHASSIS & POWER HARNESS WITH HEAVY DUTY CASING |
| S | N4AZ1X | **AUXILIARY SPOTLIGHT (CA)** | W/O SPOTLIGHT |
| S | 4GAZ1X | **PARKING BRAKE LIGHTING** | WITHOUT PARKING BRAKE LIGHTING |
| S | 5RXZ1X | **BACK-UP ALARM** | WITHOUT BACK-UP ALARM |
| S | NGXZ1X | **AUX. FOG LAMP** | WITHOUT FOG LIGHTS |
| | 9FCZ1X | **FOG LAMP TECHNOLOGY** | WITHOUT FOG LAMP TECHNOLOGY |
| | NJXA3X | **AUXILIARY LAMPS** | DASH CTRL/PWR SUPPLY/LOCAL INST PLOW LAMPS W/LEAD FURN@ GRILL W/2W/3W WEATHER PACK CON |
| | NEXD2X | **TAIL LAMPS** | LED TYPE TAIL LAMP MODULE MTD BELOW REAR CROSSMEMBER |
| S | 5FBB1X | **MARKER/DIRECTIONAL SIGNAL** | W/O MARKER/DIR SIGNAL OPTION |
| S | LSXH1X | **DAYTIME RUNNING LIGHTS** | PARK BRAKE AND ENGINE RUNNING ACTIVATED |
| S | N7XZ1X | **WARNING LAMP** | WITHOUT WARNING LIGHTS |

| TRAILER CONNECTIONS | | | Description |
|---|---|---|---|
| S | LIXZ1X | **FIFTH WHEEL ANGLE MATERIAL (CA)** | WITHOUT FIFTH WHEEL ANGLES |
| S | 9DAZ1X | **5TH WHEEL ANGLE THICKNESS** | WITHOUT 5TH WHEEL ANGLE THICKNESS |
| | 53XBAX | **TRAILER GLAD HAND COUPLINGS** | GLAD HAND COUPLINGS - NORTH AMERICAN STD |
| | WGXC1X | **TRAILER BRAKE VALVE** | HAND CONTROL VALVE FOR TRAILER OR REAR SERVICE BRAKES - DUAL FUNCTION |
| | WHXQ2X | **TRAILER CONNECTION POSITION** | TRAILER AIR BRAKE CONNECTIONS, END OF FRAME |
| S | M1XZ1X | **ELECTRICAL RECEPT, AUX POWER** | W/O HEAVY-DUTY POWER CIRCUIT |
| | 321031 | **TRAILER ELECTRICAL RECEPT** | SINGLE 7 PINS STD SAE TYPE, END OF FRAME |
| CA | 3220C2 | **TRAILER HOOKUP LIGHT** | SINGLE TRUCKLITE SUPER-44 LED, RECESSED LHS BOC W/RUBBER GROMMET (TLR HOOK-UP |

| PTO/SPECIALTY EQUIPMENT | | | Description |
|---|---|---|---|
| S | 826016 | HYDRAULIC PUMP | WITHOUT HYDRAULIC PUMP |
| S | 015025 | FRAME MODIFICATIONS | NO FRAME MODIFICATIONS PROVIDED |
| S | 997AA2 | CERTIFIED WEIGHT | CERTIFIED WEIGHT |
| S | V9BZ1X | AUX TRANSMISSION COOLER (CA) | W/O OIL COOLER AUX TRANS OPTION |
| S | 416AA1 | REAR ENGINE PTO | WITHOUT REAR ENGINE POWER TAKE OFF |
| S | 2WAZ1X | PTO TRANS NEUTRAL CONTRL CHECK | W/O NEUTRAL CONTROL |
| S | TYXZ1X | POWER TAKE OFF CONTROL | WITHOUT PTO CONTROL |
| S | B83083 | BODY BUILDER INTERFACE | BODY LINK III W/CAB PASS-THRU |
| | 183AA2 | CRANKSHAFT ADAPTER | 1350 SERIES FLANGE (DOES NOT INCLUDE FRONT FRAME EXTENSION) |
| S | 3FAZ1X | BULK UNLOADING ADAPTATION | WITHOUT AIR UNLOAD SYSTEM |
| S | D5XZ1X | UNIQUE DECALS MACHINE DIRECTIV (CA) | W/O SPECIAL DECALS |
| S | 3BAZ1X | PTO TRANS SIDE, FREE SPACE | WITHOUT PTO TRANSMISSION SIDE, FREE SPACE |
| S | 189AA1 | PTO - REAR MOUNTED | W/O REAR MTD PTO |

| CAB (A THRU G) | | | Description |
|---|---|---|---|
| S | I6AZ1X | AUXILIARY PNEUMATIC OUTLET CAB | WITHOUT CAB CLEANOUT |
| S | 173AA4 | AIR CONDITIONING/HEATER | MACK (BERGSTROM) INTEGRAL W/HEATER COMBINATION HEATER/DEFROSTER AND AIR CONDITIONER |
| | 0EAA1X | AIR INTAKE GRILLE, FINISH | BRIGHT FINISH GRILLE |
| S | PVXZ1X | AIR RESTRICTION INDICATOR | W/O AIR RESTRICTION MONITOR (displayed in CO-Pilot only) |
| S | 19AZ1X | ANTENNA - SATELLITE | W/O SATELLITE RADIO ANTENNA |
| S | 0IAAAX | ASHTRAY | ASHTRAY |
| S | 0LAZ1X | AUDIO SHUTOFF | W/O AUTO RADIO SHUTOFF OPTION |
| S | 5CXAEX | AUDIO SPEAKER LOCATION | SPEAKER LOCATION, BEHIND DOORS, MIDDLE HIGH SIDE PANEL |
| S | Q2AA1X | CAB INSTEP VERSION | FURNISH STANDARD (2) STEP CAB ACCESS OPTION |
| S | 3CAZ1X | CAB AUXILIARY FAN | W/O CAB FAN, AUX AIR CIRC OPTION |
| | 145AA5 | CAB GLASS | HEATED TINTED WINDSHIELD ONLY, TINTED SIDE AND REAR WINDOW |
| S | Q4XADX | CAB PEEP WINDOW | PEEP WINDOW ON RIGHT SIDE NON STG WHL POS. DEPEND |
| S | BHXAAX | CIGARLIGHTER | CIGAR LIGHTER |
| S | 3XAZ1X | DASH INDICATOR - LAMP BODY OUT OF POS | W/O OPTIONAL DASH MTD. LIGHT |
| S | I0XAHX | DOME LAMP, INTERIOR | (4) DOME LAMPS - DOOR AND SWITCH ACTIVATED |
| S | 1ZAZ1X | DOOR STORAGE COMPARTMENT | W/O POUCH |
| | 2KXB1X | FRONT WHEEL OPENING | FENDER EXTENSIONS |
| | 786066 | FIRE EXTINGUISHER | 5LB (ABC RATED/AMEREX) MOUNTED BETWEEN LH SEAT BASE AND DOOR WITH VALVE AIMED REARWARD |
| S | 184AA2 | FLOOR COVERING | POLYURETHANE FLOOR MAT |
| S | PFXZ1X | GAUGE - AMBIENT TEMPERATURE | W/O INSIDE/OUTSIDE TEMP GAUGE OPTION |
| S | Z8XZ1X | TIME COUNTER (CA) | W/O INDEPENDENT ENGINE HOURMETER |

| | | | |
|---|---|---|---|
| | E1AAAX | GAUGE - REAR AXLE OIL TEMP | WITH REAR AXLE OIL TEMPERATURE GAUGE |
| S | N6XR2X | GAUGE - PACKAGES | STD PKG + ENG OIL TEMP, TRANSM OIL TEMP & EXH PYROMETER |
| S | 198048 | GAUGES - UNIT OF MEASURE | U.S. UNITS (PREDOMINENT) |
| | 5870D7 | GRAB HANDLES | BF EXT CAB GRAB HANDLES, BLK HANDLE RH INTERIOR WS POST, BLK GRAB HANDLE DIAGONAL INSIDE LH DOOR |
| S | 400AA4 | GRILLE | SILVER PAINTED W/O GRILLE SURROUND |

| CAB (H THRU R) | | | Description |
|---|---|---|---|
| S | 0MAA1X | HEADLINER MATERIAL | VINYL COVERED FOAM PADDED HEADLINER |
| | 26XA1X | HOOD HATCH | WITH INSPECTION HATCH FOR SNOWPLOW HOOD |
| S | 89AA1X | INSULATION - ENGINE COMPARTMENT | HOOD INSULATION |
| S | 4UAA1X | HOOD LATCH FINISH | PAINTED HOOD LATCHES |
| | 154AC2 | HORN - AIR | (1) MACK RECTANGULAR SINGLE TRUMPET, CHROME PLATED STEEL W/SNOW SHIELD |
| | LXXD1X | HORN - ELECTRICAL | DUAL TONE |
| | UQXZ1X | DASH PANEL BOX | W/O UPPER STORAGE OPTION |
| S | C0J02J | INSTRUMENT CLUSTER DISPLAY | CO-PILOT DRIVER DISPLAY, ENHANCED 4.5" DIAGONAL LCD DISPLAY W/4-BUTTON STALK CONTROL |
| S | DBXA1X | DASHBOARD | CHARCOAL GRAY |
| | 004AA2 | INTERIOR TRIM LEVELS | PUREBRED SLATE GRAY |
| | 160AA6 | KEYED ALIKE CHASSIS | ALL CHASSIS KEYED ALIKE-4KEYS (M153) (H676) |
| S | 13AA1X | DOOR OPENING OPTIONS | W/O ELECTRONIC KEYLESS ENTRY |
| | 153AA1 | MIRRORS - CONVEX TYPE CAB DOORS | WITH AERO MIRRORS |
| S | 15H01H | MIRROR - CONVEX HOOD & FENDER | WITHOUT CONVEX TYPE |
| | 152AC4 | MIRRORS - EXTERIOR | BULLDOG STYLIZED MIRRORS - LH & RH HEATED & MOTORIZED W/INTEGRAL CONVEX MIRROR |
| | Y6CB1X | MIRRORS -- HEATED TIMEOUT (CA) | HEATED MIRROR TIME-OUT, 60 MIN |
| S | 43X50X | MIRRORS - PROXIMITY | W/O OPTIONAL VISIBILITY MIRROR |
| S | E3XD1X | FORWARD OVERHEAD STORAGE | (2) STORAGE COMPARTMENTS AND NET RETAINERS W/CENTER MOUNTING FOR CB PROVISIONS |
| S | 0GAZ1X | PERSONALIZED NAME PLATE | W/O PERSONALIZED OPTION |
| S | 17400N | AUDIO ACCOMMODATION | AM/FM PREMIUM STEREO, CD-PLAYER, MP3, WEATHERBAND, HANDSFREE INTERFACE, BLUETOOTH |
| S | MAS01S | INFOTAINMENT SERVICES / FEATURES | WITHOUT INFOTAINMENT SERVICES / FEATURES |
| S | 73AC1X | ANTENNA - RADIO | RADIO ANTENNA, CAB MOUNTED BEHIND LH DOOR |
| | 5BXC3X | ANTENNA - CB RADIO | PREP KIT FOR MOUNTING ON LT SIDE MIRROR (W/O ANTENNA) |
| S | 1WAB1X | POWER LEADS | POWER LEADS (5-WAY BINDING POSTS FOR CB RADIO) IN HEADER CONSOLE |
| S | 3JAZ1X | COMMUNICATION RADIO | W/O CB RADIO |
| S | 5JXAIX | COM.RADIO PREP KIT (CB) | CB RADIO MOUNTING REINFORCEMENT IN HEADER CONSOLE |
| S | 2DX90X | REAR CAB SUSPENSION | REAR CAB SUSPENSION, AIR |
| S | 21XA1X | AUXILIARY REAR WINDOW | REAR WINDOW (FIXED TYPE) |
| S | 784014 | REFLECTOR KIT | W/O REFLECTOR KIT OPTION |
| S | 2YXZ1X | ROOF HATCH OR COOLER | W/O ROOF VENT VENTILATION |
| | 312AB5 | ROOF MARKER LIGHT | (5) GROTE LED LAMPS |

| | | | |
|---|---|---|---|
| | IFXZ1X | REAR WALL STORAGE COMPARTMENT | W/O REAR STORAGE POUCH |

| CAB (S THRU Z) | | | Description |
|---|---|---|---|
| | 1960H6 | SEAT - DRIVER'S | BOSTROM TALLADEGA 915 (HI-BACK) AIR SUSPENSION |
| | 1970E7 | SEAT - PASSENGER'S | MACK FIXED (HI-BACK) NON-SUSPENSION |
| | 3PXA1X | SEAT ARMREST | INBOARD MOUNTED ARM REST, DRIVER'S SEAT ONLY |
| | 5920E2 | SEAT BELT(S) | SEAT BELTS (ORANGE)/RETRACTORS, LAP AND SHOULDER FOR DRIVER AND RIDER SEAT |
| S | D8XZ1X | SEAT BELT REMINDER (CA) | W/O IND. |
| S | 4850I5 | SEAT COVERING | ALL VINYL, CAB INTERIOR DEPENDENT COLOR DRIVER & RIDER SEATS |
| | 0HAA1X | SEAT SUPPORT, DUST COVER | SEAT, DUST COVER FOR DRIVER'S SEAT |
| S | 2QAA1X | IGNITION TYPE | KEY TYPE |
| S | 161005 | STEERING WHEEL | 2 SPOKE URETHANE GRIP, CHARCOAL SPOKES, W/O SWITCHES |
| S | U7XB1X | SUN VISOR - INTERIOR, FRONT | SUN VISOR - BOTH SIDES |
| | 157027 | SUN VISOR - EXTERIOR | SUN VISOR, EXTERIOR, FIBERGLASS (PAINTED) |
| S | NPXB1X | TURN SIGNALS | SELF CANCELLING TURN SIGNALS |
| | JQXABX | WASHER RESERVOIR POSITION | WINDSHIELD WASHER RESERVOIR INSTALLED BOC |
| | 146AA3 | WINDOW CONTROLS | POWER WINDOW LIFT WITH ELECTRIC DOOR LOCK, LH & RH |
| S | WSXBAX | WINDSHIELD TYPE | 2-PIECE WINDSHIELD |
| | 148AA5 | WINDSHIELD WIPERS | TWO SPEED ELECTRIC MOTOR W/INTERMITTENT FEATURE & ARCTIC WIPER BLADES |
| S | 05AZ1X | WORK LIGHTS - CHASSIS MOUNTED | W/O WORK LIGHTS |

| CAB - SLEEPER BOX | | | Description |
|---|---|---|---|
| S | 4UXZ1X | STORAGE OVERHEAD BUNK | Without rear wall cabinet / shelf |

| AERODYNAMIC DEVICES | | | Description |
|---|---|---|---|
| S | 159AA1 | ROOF FAIRING/SIDE SHIELDS | WITHOUT AERO AIDS |

| WHEELS & TIRES | | | Description |
|---|---|---|---|
| S | 4WCC1X | GHG STEER TIRE CATEGORY | LOW ROLLING RESISTANCE, BETTER FUEL ECONOMY |
| | 900AC0 | TIRES BRAND/TYPE - FRONT | 315/80R22.5 L BRIDGESTONE M860A (ALL POSITIONS) (Total for QTY = 2) |
| S | H8CB1X | TIRE SPEED LIMIT | TIRE SPEED LIMIT BASIC |
| | 531AE3 | WHEELS - FRONT | 22.5x9.0 HAYES LEMMERZ STEEL DISC 10-HOLE HUB PILOTED, FIVE HAND HOLES (11 1/4"/286mm BC) 5.25" INSE (Total for QTY = 2) |
| | 49AZ1X | WHEEL FINISHING, FRONT | W/O FRONT DISC WHEEL BRIGHT FINISH |
| S | FWT002 | FRONT AXLE TIRE & WHEEL QUANTITY | TWO FRONT TIRES & WHEELS |
| | 4XCG1X | GHG DRIVE TIRE CATEGORY | OTHER (NON-SPECIFIED), VERY POOR FUEL ECONOMY |
| | 901AJ8 | TIRES BRAND/TYPE - REAR | 11R22.5 H BRIDGESTONE M770 (DRIVE ONLY) (Total for QTY = 4) |
| | 346AE3 | WHEELS - REAR | 22.5x8.25 ACCURIDE ACCU-LITE STEEL DISC 10-HOLE HUB PILOTED, FIVE HAND HOLES (11 1/4" BOLT CIRCLE) (Total for QTY = 4) |
| S | 2YAZ1X | REAR WHEEL RIM CLAMP | WITHOUT REAR WHEEL RIM CLAMP |
| | 235085 | REAR DISC | W/O REAR DISC WHEEL BRIGHT FINISH |

| | | | |
|---|---|---|---|
| | | WHEEL:POLISH | |
| S | RWT004 | REAR AXLE TIRE & WHEEL QUANTITY | FOUR REAR AXLE TIRES & WHEELS |
| S | BDXAMX | WHEEL STUDS (CA) | WHEEL STUDS BASIC LENGTH |
| S | FIXZ1X | HUB/WHEEL ISOLATOR FRONT | W/O FRONT WHEEL GUARD OPTION |
| S | FMXZ1X | HUB/WHEEL ISOLATOR DRIVE | W/O PROTECTIVE NYLON SPACER BETWEEN DISCS WHEEL TO DRUM |
| S | 80AA1X | WHEEL NUT & FINISH, FRONT | W/O FRONT WHEEL NUT OPTION |
| S | 3PBA1X | WHEEL NUT FINISH, REAR (CA) | WHEEL NUT BASIC FINISH, REAR |
| S | 15XABX | TIRE INFLATION VALVE | PROVIDE STANDARD VALVE STEMS AND CAPS |
| S | 6VXZ1X | SPARE WHEEL | W/O SPARE WHEEL W/TIRE |
| S | 6SXZ1X | SPARE WHEEL CARRIER, POS | W/O SPARE TIRE CARRIER |
| S | 1SBZ1X | WHEEL FINISHING, TRAILING | WITHOUT WHEEL FINISHING TRAILING |
| S | 282012 | HYDRAULIC JACK | W/O HYDRAULIC JACK |

| COMMUNICATION SYSTEMS | | | Description |
|---|---|---|---|
| S | 9XDZ1X | SOFTWARE DOWNLOAD PASSWORD | WITHOUT SOFTWARE DOWNLOAD PASSWORD |
| S | 9YDZ1X | SOFTWARE DOWNLOAD NOTIFICAQTION | WITHOUT SOFTWARE DOWNLOAD NOTICICATION |
| S | 3YAA1X | CO-PILOT - DISPLAY FEATURES ACCESS LEVEL | DISPLAY FEATURES, LIMITED, NO DRIVER ACCESS LEVEL 1 |
| S | 3RAZ1X | FLEET TRIP MANAGEMENT | WITHOUT FLEET TRIP MANAGEMENT DRIVER CONTROL |
| S | M30060 | TELEMATIC GATEWAY | GUARDDOG CONNECT WITH 4G/LTE AND WLAN SYSTEM WITH DIAGNOSTIC SERVICES |
| | U5CZ1X | REMOTE SOFTWARE UPGRADE | WITHOUT REMOTE SOFTWARE UPGRADE |

| VEHICLE ELECTRONICS | | | Description |
|---|---|---|---|
| S | X3CB1X | DRIVER ID FUNCTION | DRIVER ID FUNCTION, DISABLED |
| S | X5CZ1X | DRIVER ID, RESET TIMER | WITHOUT RESET DRIVER ID TIMER |
| S | X4CZ1X | DRIVER ID, ALERT TIMER | WITHOUT DRIVER ID ALERT TIMER |
| S | C7CZ1X | CUSTOMER UNIQUE VEHICLE PARAM (CA) | WITHOUT CUSTOMER UNIQUE VEHICLE PARAMETERS |
| S | E7AZ1X | FUEL ECONOMY INCENTIVE PROGRAM | WITHOUT FUEL ECONOMY INCENTIVE PROGRAM |
| S | E8AZ1X | FUEL ECON RWRD, SPD LMT INCRS | WITHOUT FUEL ECONOMY REWARD, SPEED LIMIT INCREASE |
| S | E9AZ1X | FUEL ECON PNLTY, SPD LMT DCRS | WITHOUT FUEL ECONOMY PENALTY, SPEED LIMIT DECREASE |
| S | 4IAZ1X | FUEL ECONOMY REWARD TARGET | WITHOUT FUEL ECONOMY REWARD TARGET |
| S | 4JAZ1X | FUEL ECONOMY PENALITY TARGET | WITHOUT FUEL ECONOMY PENALTY TARGET |
| S | 4KAZ1X | FUEL ECON CALC DISTANCE INTER | WITHOUT FUEL ECONOMY CALCULATION DISTANCE INTERVAL |
| S | G5AAHX | ENGINE OVERSPEED,ALL COND, LOG | ENGINE OVERSPEED, ALL CONDITIONS, TIME LOG IF ABOVE 2200 RPM |
| S | G2AAGX | ENGINE OVERSPEED,FUELED, LOG | ENGINE OVERSPEED, FUELED, TIME LOG IF ABOVE 2100 RPM |
| S | G4AAUX | VEHICLE | VEHICLE OVERSPEED,ALL COND, TIME LOG IF ABOVE 75MPH (121KMH) |

| | | | | |
|---|---|---|---|---|
| | | | OVERSPEED,ALL COND,LOG | |
| S | | G3AAPX | VEHICLE OVERSPEED, FUELED, LOG | VEHICLE OVERSPEED, FUELED, TIME LOG IF ABOVE 70MPH (113KMH) |
| S | | G1AABX | ENGINE IDLE DELAY TO LOG | ENGINE IDLE DELAY TO START LOG, 2 MIN |
| S | | W7AZ1X | PERIODIC TRIP LOG HOUR OF DAY | WITHOUT PERIODIC TRIP LOG, HOUR |
| S | | W8AZ1X | PERIODIC TRIP LOG DAY OF WEEK | WITHOUT PERIODIC TRIP LOG, DAY OF WEEK |
| S | | W9A01X | PERIODIC TRIP LOG DAY OF MONTH | PERIODIC TRIP LOG, DAY 1 OF THE MONTH |
| | CA | R4BE1X | PRE-TRIP DIAGNOSTIC INSPECTION (CA) | ALL LIGHTS |
| S | | X5AZ1X | VEHICLE APP SERVICE INTERVALS | WITHOUT SERVICE INTERVALS (USER ENTERED) |
| S | | W8BAAX | SERVICE ALERT | WITH SERVICE ALERT |
| S | | P6X99X | SERVICE ALERT SYSTEM | WITHOUT SERVICE ALERT SYSTEM |
| S | | W5AZ1X | MAINTENANCE DUE ALERT % | WITHOUT MAINTENANCE DUE ALERT PERCENTAGE |
| S | | WOXA1X | OIL PRESSURE, ENGINE SHUTDOWN | OIL PRESSURE, ENGINE SHUTDOWN |
| S | | WIXZ1X | COOLANT LEVEL, ENGINE SHUTDOWN | WITHOUT COOLANT LEVEL ENGINE SHUTDOWN |
| S | | WMXA1X | COOLANT TEMP, ENGINE SHUTDOWN | COOLANT TEMP, ENGINE SHUTDOWN |
| S | | K5XA2X | ENGINE PROTECTION SYSTEM | ENGINE PROTECTION (SHUTDOWN) |
| S | | D0AZ1X | ENG FAN CNTL, STAT VEHICLE | WITHOUT ENG FAN CONTROL, STATIONARY VEHICLE |
| S | | C9AZ1X | ENG FAN CONTROL,MOVING VEHICLE | WITHOUT ENG FAN CONTROL, MOVING VEHICLE |
| S | | D1AZ1X | ENG.FAN CNTL MVG VHC.TIME SET | WITHOUT ENG FAN CONTROL, MOVING VEHICLE, TIME SETTING |
| S | | C8AZ1X | FAN ENGAGEMENT DUE TO PTO | WITHOUT FAN ENGAGEMENT DUE TO PTO |
| S | | C7AZ1X | ENG FAN CNTL, A/C ON, TIME SET | WITHOUT ENG FAN CONTROL, A/C ON, TIME SETTING |
| S | | A4BAAX | DETECTION SPEED SENSR TMPRNG | DETECTION OF SPEED SENSOR TAMPERING, ENABLE |
| S | | 8RXAEX | ENG TORQUE LIMIT,SPEED SENSOR | ENG TORQUE LIMITED TO 50%, IF SPEED SENSOR TAMPER DETECTED |
| S | | X8CZ1X | HIGH IDLE SPEED-UPR GRS FEATUR | ENGINE HIGH IDLE SPEED IN UPPER GEARS, DISABLED |
| S | | A3BZ1X | HIGH IDLE SPEED-UPPER GRS RPM | WITHOUT ENGINE HIGH IDLE SPEED IN UPPER GEARS |
| S | | Z2CZ1X | 1ST RATIO FOR REDUCD HIGH IDLE | WITHOUT 1ST RATIO FOR REDUCED HIGH IDLE |
| S | | Z3CZ1X | LAST RATIO FOR FULL HIGH IDLE | WITHOUT LAST RATIO FOR FULL HIGH IDLE |
| S | | F2AZ1X | PTO 1ST, SINGLE SPEED CONTROL | WITHOUT PTO 1ST, SINGLE SPEED CONTROL |
| S | | F3AAEX | PTO1 SINGLE SPEED CONTROL RPM. | PTO 1ST, SINGLE SPEED SETTING, 1000 RPM |
| S | | F5AABX | PTO 1ST, MAX ROAD SPEED | 1ST PTO, MAX ROAD SPEED, 10 MPH (16 KPH) |
| S | | F6AABX | PTO 1ST, SPEED RAMP RATE | PTO 1ST, SPEED RAMP RATE 100 RPM/SEC |
| S | | F7AAPX | PTO 1ST, MAX ENGINE SPEED | PTO 1ST, MAX ENGINE SPEED, 2100 RPM |
| S | | F8AAGX | PTO 1ST, ROAD SPEED LIMIT | PTO 1ST, ROAD SPEED LIMIT, 97 KMH (60 MPH) |
| S | | X3AZ1X | PTO 1ST,JUMP TO MIN ENG SPEED | WITHOUT PTO 1ST, JUMP TO MINIMUM ENGINE SPEED |
| S | | F9AABX | PTO 1ST, MINIMUM ENGINE SPEED | PTO 1ST, MINIMUM ENGINE SPEED, 600 RPM |

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|---|---|---|---|
| S | G0AZ1X | PTO 1ST,AUTO SET SINGLE SPEED | PTO 1ST, AUTO SET SINGLE SPEED, DISABLE |
| S | H2AZ1X | PTO 2ND, SINGLE SPEED CONTROL | WITHOUT 2ND PTO, SINGLE SPEED CONTROL |
| S | H6AAEX | PTO 2ND, SINGLE SPEED SETTING | PTO2 SINGLE SPEED SETTING, 1000 RPM |
| S | H0AABX | PTO 2ND, MAX ROAD SPEED | 2ND PTO, MAX ROAD SPEED, 10 MPH (16 KPH) |
| S | G9AABX | PTO 2ND, SPEED RAMP RATE | PTO 2ND, SPEED RAMP RATE 100 RPM/SEC |
| S | H7AANX | PTO 2ND, MAX ENGINE SPEED | PTO 2ND, MAX ENGINE SPEED, 2100 RPM |
| S | H5AAGX | PTO 2ND, ROAD SPEED LIMIT | PTO 2ND, ROAD SPEED LIMIT, 97 KMH (60 MPH) |
| S | X4AZ1X | PTO 2ND,JUMP TO MIN ENG SPEED | WITHOUT PTO 2ND, JUMP TO MINIMUM ENGINE SPEED |
| S | G8AABX | PTO 2ND, MINIMUM ENGINE SPEED | PTO 2ND, MINIMUM ENGINE SPEED, 600 RPM |
| S | H4AZ1X | PTO 2ND,AUTO SET SINGLE SPEED | PTO 2ND, AUTO SET SINGLE SPEED, DISABLE |
| | Y9CZ1X | TRANS PTO1 SPLITTER RANGE | W/O PTO1 FOR SPLITTER RANGE |
| | Z1CZ1X | TRANS PTO2 SPLITTER RANGE | W/O PTO2 SPLITTER RANGE |
| S | W5BJ2X | MAXIMUM ENG SPEED AT 0 MPH | 1950 MAXIMUM ENGINE SPEED AT 0 MPH |
| S | O1AZ1X | ACCELERATOR LIMITER | WITHOUT ACCELERATOR LIMITER |
| S | JCXE6X | ROAD SPEED LIMITER SETTING | 105 KM/HOUR ROAD SPEED LIMITER(65 MILES/HOUR) |
| S | Y3CC5X | PEDAL RSL SETTING | 105 KM/H PEDAL ROAD SPEED LIMITER (65MPH) |
| S | U4AZ1X | LOW GEAR LIMITING FEATURE | WITHOUT LOWER GEAR VEHICLE LIMITING FEATURE |
| S | U5AZ1X | LOW GEAR LIMITING SPEED | WITHOUT LOW GEAR VEHICLE LIMITING SPEED |
| S | X2BZ1X | ROAD SPEED LIMIT CONTROL TYPE | WITHOUT WITH RSL CONTROL TYPE |
| S | L1CZ1X | PDLO ENGAGE VLS FEATURE | DISABLE POWER DIVIDER LOCK OUT (PDLO) ROAD SPEED LIMIT |
| S | L2CA1X | PDLO ENGAGED VLS | POWER DIVIDER LOCK OUT (PDLO) ROAD SPEED LIMIT 8KMH (5MPH) |
| S | JFXLLX | CRUISE CONTROL, MAX SPEED | MAX CRUISE, 105 KPH (65 MPH) |
| S | E3AACX | CRUISE CONTROL MIN SPEED | MIN CRUISE, 32 KPH (20 MPH) |
| | E4AZ1X | CRUISE RESUME WITH CLUTCH | WITHOUT CRUISE RESUME WITH CLUTCH |
| S | E5AACX | ENG BRK ENGAGE IN CRUISE | ENG BRK ENGAGE IN CRUISE, 3 MPH, ABOVE SET SPEED |
| S | JDXA1X | CRUISE CONTROL | WITH CRUISE CONTROL |
| S | L6CZ1X | PTO1 HOLD TO NEAREST RPM | WITHOUT PTO1 HOLD |
| S | L7CZ1X | PTO1 ACCEL BUMP-UP RPM | WITHOUT PTO1 ACCEL "BUMP-UP" |
| S | L8CZ1X | PTO1 DECEL BUMP-DOWN RPM | WITHOUT PTO1 DECEL "BUMP-DOWN" |
| S | L3CZ1X | PTO2 HOLD TO NEAREST RPM | WITHOUT PTO2 HOLD |
| S | L4CZ1X | PTO2 ACCEL BUMP-UP RPM | WITHOUT PTO2 ACCEL "BUMP-UP" |
| S | L5CZ1X | PTO2 DECEL BUMP-DOWN RPM | WITHOUT PTO2 DECEL "BUMP-DOWN" |
| S | K7XH3X | ENGINE IDLE CONTROL | IDLE CONTROL, 650 RPM |
| S | I1AZ1X | LOW IDLE RPM ADJUSTEMENT | WITHOUT LOW IDLE RPM ADJUSTMENT |
| S | M6AZ1X | ENGINE IDLE ADJUST | WITHOUT ENGINE IDLE ADJUST |

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|---|---|---|---|
| S | X0AB0X | SMART IDLE ELEVATED IDLE RPM TIME | INCREASE 10 MINUTE MAXIMUM TIME |
| S | M3CA1X | IDLE S/D ABS TAMPER CHECK | IDLE SHUTDOWN ABS TAMPER CHECK, ENABLED |
| S | B2AZ1X | ENGINE IDLE COOLDOWN | ENGINE IDLE COOLDOWN, DISABLE |
| S | A3AZ1X | IDLE SHUTDOWN | ENGINE IDLE SHUTDOWN, DISABLE |
| S | E0XGAX | ENGINE IDLE SHUTDOWN TIME | IDLE SHUTDOWN TIME 10 MIN. |
| S | B1ACAX | IDLE S/D WARNING TIME | 30 SEC IDLE S/D WARNING TIME |
| S | A8AALX | IDLE S/D IF WARM-UP TEMP | 38C DEG (100F), WARM UP TEMP DELAY |
| S | A4AAEX | IDLE S/D WARM-UP TIMER | 5 MIN. WARM UP TIME DELAY |
| S | A7AZ1X | IDLE S/D IF EHT ACTIVE | WITHOUT ENGINE IDLE SHUTDOWN TIME OVERRIDE IF EHT ACTIVE |
| S | A6AABX | IDLE S/D IF PTO ACTIVE | ENGINE IDLE SHUTDOWN TIME OVERRIDDEN IF PTO ACTIVE |
| S | B0AAAX | IDLE SHUTDOWN IF POWER > LIMIT | ENG IDLE SHUTDOWN TIME OVERRIDDEN IF TORQUE > THAN LIMIT |
| S | M4CB1X | IDLE S/D OVERIDE %ENGINE LOAD | IDLE SHUTDOWN OVERIDE UPTO 20% ENGINE LOAD THRESHOLD |
| S | A9AZ1X | IDLE SHUTDOWN CONTROL | WITHOUT IDLE SHUTDOWN CONTROL |
| S | D2AAFX | AMBIENT TEMP MIN TRESHOLD | AMBIENT TEMP MIN TRESHOLD, 16 DEG C, (60 DEG F) |
| S | D3AAEX | AMBIENT TEMP MAX TRESHOLD | AMBIENT TEMP MAX TRESHOLD, 27 DEG C, (80 DEG F) |
| S | B3ABAX | EL HD THROTTLE,MAX ROAD SPEED | ELECTRONIC HAND THROTTLE, MAX ROAD SPEED, 16 KMH (10 MPH) |
| S | B6ACEX | EL HAND THROTTLE,MAX ENG SPEED | ELECTRONIC HAND THROTTLE, MAX ENGINE SPEED, 2100 RPM |
| S | B4ADAX | EL HAND THROTTLE,MIN ENG SPEED | ELECTRONIC HAND THROTTLE, MIN ENGINE SPEED, 700 RPM |
| S | B9AABX | EL HD THROTTLE,SPEED RAMP RATE | ELECTRONIC HAND THROTTLE, SPEED RAMP RATE, 100 RPM/SEC |
| S | B7AZ1X | EL HD THROTTLE,SGL SPEED CNTRL | WITHOUT ELECTRONIC HAND THROTTLE, SINGLE SPEED CONTROL |
| S | B8AZ1X | EL HAND THROTTLE,SGL SPEED SET | WITHOUT ELECTRONIC HAND THROTTLE, SINGLE SPEED SETTING |
| S | C0AZ1X | EHT, JUMP TO MIN ENG SPEED | WITHOUT ELECTRONIC HAND THROTTLE, JUMP TO MIN. ENGINE SPEED |
| S | L9CZ1X | EHT HOLD TO NEAREST RPM | WITHOUT ELECTRONIC HAND THROTTLE HOLD |
| S | M1CZ1X | EHT ACCEL BUMP-UP RPM | WITHOUT ELECTRONIC HAND THROTTLE ACCEL "BUMP-UP" |
| S | M2CZ1X | EHT DECEL BUMP-DOWN RPM | WITHOUT ELECTRONIC HAND THROTTLE DECEL "BUMP-DOWN" |
| S | X1AZ1X | DRL OVERRIDE SW TIMED | WITHOUT DAYTIME RUNNING LAMP OVERRIDE SW |
| S | X2AZ1X | DRL OVERRIDE SPEED THRESHOLD | WITHOUT DRL OVERRIDE SPEED THRESHOLD |

| PAINT | | | Description |
|---|---|---|---|
| S | 950AD0 | PAINT/VINYL STRIPING - CAB EXTERIOR | SINGLE COLOR |
| S | 924014 | PAINT TYPE | SOLID PAINT |
| S | 944AA7 | PAINT COLOR - FIRST COLOR | MACK WHITE (HIGH GLOSS) |
| S | 945998 | PAINT COLOR - SECOND COLOR | NO SECOND TRUCK COLOR PROVIDED; NO COLOR |
| S | 946998 | PAINT COLOR - THIRD COLOR | NO THIRD TRUCK COLOR PROVIDED; NO COLOR |

| | | | |
|---|---|---|---|
| S | 996AA3 | PAINT - CAB PAINT SYSTEM | PAINT - CAB, URETHANE CLEAR COAT |
| S | MPB944 | CAB COLOR | SAME AS FIRST COLOR - CAB |
| S | MPD944 | PAINT: HOOD COLOR | SAME AS FIRST COLOR- HOOD |
| S | MPC998 | PAINT: SLEEPER ROOF COLOR | WITHOUT SLEEPER ROOF COLOR |
| S | 943998 | CHASSIS FAIRING COLOR | WITHOUT CHASSIS FAIRINGS |
| S | MPA998 | PAINT: ROOF FAIRING COLOR | WITHOUT ROOF FAIRING |
| | 966944 | SUN VISOR COLOR | SAME AS FIRST COLOR |
| S | 951AA6 | PAINT - CHASSIS RUNNING GEAR | MACK BLACK (URETHANE) |
| S | 940998 | MIRROR COVER COLOR | WITHOUT MIRROR COVER PAINT |
| S | 958018 | PAINT:BUMPER | PAINT BUMPER SAME COLOR AS CHASSIS RUNNING GEAR |
| S | 959019 | PAINT:FUEL TANK | W/O OPTIONAL FUEL TANK PAINT |
| | 7HBZ1X | FUEL TANK PAINT PROCESS CODE | W/O PAINT FOR FUEL TANK (7HB-Z1X) |
| | 07XC1X | FRONT WHEEL PAINT | PRE-FINISHED POWDER COAT WHITE |
| | 08XC1X | DRIVE WHEEL PAINT | PRE-FINISHED POWDER COAT WHITE |
| S | 954AA1 | PAINT:DISC WHEELS-FRONT | WITHOUT PAINT |
| S | 955AA1 | PAINT:DISC WHEELS-REAR | WITHOUT PAINT |
| S | 956016 | PAINT:DEMOUNT.RIMS-FRONT | WITHOUT PAINT |
| S | 957027 | PAINT:DEMOUNT.RIMS-REAR | WITHOUT PAINT |
| S | 952AA1 | PAINT:SPOKE WHEELS-FRONT | WITHOUT OPTIONAL SPOKE WHEEL PAINT |
| S | 953AA1 | PAINT:SPOKE WHEELS-REAR | WITHOUT OPTIONAL SPOKE WHEEL PAINT |
| S | 962032 | PAINT:HUBS & DRUMS-FRONT | SAME AS CHASSIS RUNNUNG GEAR |
| S | 963033 | PAINT:HUBS & DRUMS-REAR | SAME AS CHASSIS RUNNING GEAR |

| CALCULATED CODES - KAX | | | Description |
|---|---|---|---|
| S | 9JXA1X | PROPCALC SELECTION | YES, THE ORDER MUST BE CALCULATED |
| S | D5EA1X | AUTO ROUTING & CLIPPING, CENTER | AUTOMATIC ROUTING & CLIPPING PLACEMENT, CENTER SECTION |

| BASE WARRANTY & PURCHASED COVERAGES | | | Description |
|---|---|---|---|
| S | M98018 | WARRANTY REGISTRATION LOCATION | US - WARRANTY REGISTRATION LOCATION |
| | 898003 | VEHICLE WARRANTY TYPE | HEAVY DUTY WARRANTY CLASSIFICATION |
| S | M50030 | BASIC CHASSIS COVERAGE | HEAVY DUTY STANDARD BASE COVERAGE 12 MONTHS/100,000 MILES (161,000 KM) |
| S | M51021 | ENGINE WARRANTY | MACK MP7/MP8 BASE ENGINE COVERAGE 24 MONTHS / 250,000 MILES (402,000KM) |
| S | M52022 | EMISSION COMPONENT COVERAGE | US and CANADA EQUIPPED VEHICLE EMISSION COMPONENTS COVERAGE 60 MONTHS/100,000 MILES (161,000 KM) |
| S | M53Z1X | MACK ENGINE EXHAUST AFTER TREATMENT COVERAGE | W/O MACK ENGINE EXHAUST AFTERTREATMENT TREATMENT PROTECTION PLAN |
| | M540B4 | TRANSMISSION WARRANTY | ALLISON TRANSMISSIONS (Contact Allison Transmission for standard warranty and extended coverage data |
| S | M710J1 | mDrive CLUTCH | WITHOUT mDRIVE CLUTCH PROTECTION PLAN |

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|---|---|---|---|
| | | PROTECTION PLAN | |
| S | M55035 | CARRIER & AXLE HOUSING WARRANTY | STANDARD MACK HEAVY DUTY COVERAGE 36 MONTHS / 350,000 (563,000 KM) |
| S | M56026 | AIR CONDITIONING WARRANTY | AIR CONDITIONING STANDARD COVERAGE (Sealed System Only) 12 MONTHS UNLIMITED MILEAGE |
| S | M57027 | CHASSIS TOWING WARRANTY | STANDARD NORMAL / HEAVY DUTY CHASSIS TOWING 90 DAYS OR 5,000 MILES |
| S | M58028 | ENGINE TOWING WARRANTY | STANDARD MACK ENGINE TOWING COVERAGE 24 MONTHS/250,000 MILES (402,000 KM) |
| S | M61Z1X | ALTERNATOR & STARTER WARRANTY | W/O ALTERNATOR and STARTER EXTENDED WARRANTY COVERAGE |
| S | M59Z1X | STARTER WARRANTY | W/O STARTER PURCHASED COVERAGE |
| S | M60Z1X | ALTERNATOR WARRANTY | W/O ALTERNATOR PURCHASED COVERAGE |
| S | M690F9 | GUARDDOG CONNECT BUNDLE | 24 MNTH - GUARDDOG CONNECT WITH MACK OTA |
| S | M72Z1X | OMNITRACS FOR MACK TRUCKS | WITHOUT OMNITRACS FOR MACK TRUCKS |
| S | M70080 | MACK ONECALL BUNDLE | 24 MNTH - ASIST AND MACK ONECALL |
| S | M68Z1X | PARTNERED SERVICES | W/O TELOGIS PACKAGE |
| S | M65Z1X | PREMIUM MAINTENANCE PLAN 1 & PLAN 2 | W/0 PREMIUM MAINTENANCE PLAN |
| S | M66Z1X | PREMIUM MAINTENANCE AFTERTREATMENT PLAN | W/O AFTERTREATMENT PREMIUM MAINTENANCE PLAN |
| S | M67017 | PREMIUM MAINTENANCE - CHASSIS LUBE AND INSPECTION | W/OUT PREMIUM MAINTENANCE - CHASSIS LUBE AND INSPECTION COVERAGE |
| S | M99000 | CUSTOM/BUNDLED PURCHASE COVERAGE OPTIONS | W/O CUSTOM/BUNDLED PURCHASE COVERAGE OPTION |

**ADDITIONAL OPTIONS**

| (AnswerApproved) | | | Description |
|---|---|---|---|
| CA | b83 | BODY BUILDER INTERFACE | Per phone conversation between Scott,Marc M & Keith L, Scott wants both standard BOC body builder cable & cable under rider seat for the 4 switches. |
| CA | 1419138 | RELOCATE AIR RESERVOIRS | AIR TANKS UNDER BATT BOX & RH RAIL, REMAINING IN FRAME cpak0122 This code selected per review with Lehman/Hassan Give this order to Keith |

**ADDITIONAL ENGINEERING**

| (AnswerApproved) | | Description |
|---|---|---|
| CA | 1 | |

Board of County Commissioners of Washington County, Maryland

Agenda Report Form

Open Session Item

**SUBJECT:** Request to Convey Certain Real Property

**PRESENTATION DATE:** August 22, 2017

**PRESENTATION BY:** Susan Small, Real Property Administrator, Engineering Department

**RECOMMENDED MOTION:** Move to authorize the advertising of the County's intent to convey 2,636.55+/- linear feet (31,638.6 SF) to adjacent property owners at Valley Meadow Farms, LLC.

**REPORT-IN-BRIEF:** In February of this year, property owners from Valley Meadow Farms, LLC in Hancock requested that staff look into closing and conveyance of approximately 0.7 miles of Bottenfield Road ending at the Pennsylvania border. The road currently dead ends between two Valley Meadow Farms parcels. The road bed in to Pennsylvania is wooded, gated, and leads to a private driveway. The closed portion would serve as the driveway to their parcels and they would assume all maintenance of the road.

**DISCUSSION:** On February 28, staff presented the proposed closure of that portion of Bottenfield Road with a future conveyance to Valley Meadow Farms, LLC. The Commissioners were in concurrence to move forward with the process and installation of a turnaround for school buses at the last private property on Bottenfield Road. County staff has installed the turnaround. The fair market value of the road bed has been determined to be $2,400.00 using comparable properties and sales in the area.

**FISCAL IMPACT:** $2,400 in revenue from the sale of the property

**CONCURRENCES:** Director of Engineering

**ALTERNATIVES:** N/A

**ATTACHMENTS:** Aerial map

**AUDIO/VISUAL NEEDS:** N/A

# Bottenfield Road Hancock, 21750