# Plate Study Committee Recommendations

***Prepared for the 127th Legislature***

***Joint Standing Committee on Transportation***

***At the request of the Joint Standing Committee on Transportation of the 126th Legislature***

January 15, 2015


***Prepared by the Department of the Secretary of State***
***Bureau of Motor Vehicles***

***Secretary of State Matthew Dunlap***

MATTHEW DUNLAP
SECRETARY OF STATE

STATE OF MAINE

OFFICE
OF THE
SECRETARY OF STATE

January 15, 2015

Honorable Ronald F. Collins, Senate Chair
Honorable Andrew J. McLean, House Chair
Members of the Joint Standing Committee on Transportation
2 State House State
Augusta, ME 04333-0002

Dear Senator Collins, Representative McLean, and Members of the Joint Standing Committee on Transportation,

I am pleased to submit the Plate Study Committee Report as requested by the Joint Standing Committee on Transportation of the 126th Legislature.

The Plate Study Committee included representatives from the Maine State Police, local law enforcement, the Maine Turnpike Authority, the Maine Municipal Association, the Maine Department of Corrections, and the American Association of Motor Vehicle Administrators, as well as Bureau of Motor Vehicles (BMV) staff. The committee met three times and received oral and written presentations from several registration plate systems vendors. A list of committee membership and guests is provided in Appendix B of the report.

I look forward to working with you as you consider this report. As always, if I can be of assistance to you, please do not hesitate to call on me.

Sincerely,

Matthew Dunlap
Secretary of State

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# MAINE PLATE STUDY REPORT

## EXECUTIVE SUMMARY

During the second session of the 126th Maine Legislature, the Joint Standing Committee on Transportation requested, contained in Appendix A, that the Secretary of State convene a study group to examine the general reissue of the standard (chickadee) registration plate and provide recommendations to the Transportation Committee by January 15, 2015.

The study committee was charged with evaluating the benefits and costs of a plate reissuance to law enforcement, highway safety, and revenues. The committee also was charged with considering new technologies for plate production currently in use in other states. In addition, the Transportation Committee asked the study committee to review the reissuance process undertaken by the BMV in 1999.

The Secretary of State invited participation from the Maine State Police, local law enforcement, the Maine Turnpike Authority, Maine Municipal Association, Maine Department of Corrections, and the American Association of Motor Vehicle Administrators, as well as Bureau of Motor Vehicles (BMV) staff. The committee met three times. In addition the committee received oral and written presentations from several registration plate systems vendors. Appendix B is a complete list of study participants and guests. The Secretary of State wishes to recognize and thank the study committee members and guests for their participation and valuable input.

The study committee makes the following recommendations (further details within **Findings and Proposed Recommendations** section of report):

- Retain current manufacturing process for embossed plate production.
- Recommend that current standard chickadee design remain unchanged.
- Implement a systematic replacement process (10-year reissue cycle) to remove aging standard registration plates from existence.
- Recommend that BMV work collaboratively with State Police to establish a visual plate inspection process to coincide with the vehicle inspection.
- Implement a new numbering sequence, using alphanumeric values only, for standard passenger plates beginning in FY18 as current numbering sequence is nearing its end.
- Recommend that other specialty and standard plate classes meeting the 10-year age threshold be replaced with new plates.
- Recommend that BMV review and collaborate with appropriate entity to redesign other plate classes, i.e. Veteran plates, for further compliance to AAMVA's best practices for registration plates.
- Stacked class codes, i.e. Conservation or Gold Star classes, should be phased out.
- Continue to require two plates for most vehicle types.
- Consider legislation to prohibit the use of plate brackets or covers which obstruct plate readability.
- Consider legislation to prohibit the duplication of numbering sequences or vanity plates across plate classes.
- Consider retiring certain low volume plates, i.e., Conservation Disabled plates.
- Recommend that all passenger-type vehicles be allowed to register up to 10,000 pounds capacity.

## BACKGROUND

Registration plates serve several essential purposes:

- Provides a means of identifying a registered vehicle owner for law enforcement and other purposes.
- Reflectivity provides enhanced motor vehicle visibility.
- Indicates that the appropriate taxes and fees have been paid for the use of the highway system.
- Provides a means of enforcing motor vehicle-related laws by the granting and denial of registration privileges.
- Registration data is used for many different planning and projection purposes.
- Serves secondary purposes such as providing recognition to certain deserving groups; conveying certain privileges; conferring prestige; raising awareness and revenue for certain causes; and providing state recognition.

As the preface to the 1999 study notes: "Perhaps no other public policy issue evokes such lively public discussion as does registration plates. Plate design is debated in coffee shops and in the Legislature, and school children and civic groups develop and sponsor their favorite designs. Low digit plates are coveted, and cherished numbers are passed from one generation to the next. Citizens vie to see who can sport the most clever vanity plate slogan. Motorists use their license plates to proclaim their philosophies, affinities, goals, and desires. Nearly every Maine adult and Maine business registers vehicles, and therefore has an opinion regarding plate design."

Maine last conducted a comprehensive plate study in 1999. That study recommended replacing the lobster plate with the current chickadee design. The justification for a new plate issue included the length of time that the lobster plate had been in use; the legibility and reflectivity of the plates; concern about the accuracy of the BMV's database; and possible revenue loss due to non-compliance with registration requirements. The 1999 study reviewed current and alternative production and distribution methods, and concluded that plates should continue to be made at the Maine state prison in Warren, using the embossed plate method. The 1999 study did recommend upgrading certain equipment, as well as the construction of a new onsite materials and inventory facility. The 1999 study also recommended that Maine continue to issue two registration plates.

Maine currently has approximately twenty different types of automobile plates. See Appendix C for a table of current plates. In total, Maine has just over 1 million active automobile-type registrations. Of these, approximately 815,000 have standard chickadee plates. Approximately twenty percent, or about 160,000 chickadee plates may be ten or more years old. Registration plates are designed for a minimum lifespan of at least five to seven years and for the most part, registration plates appear to be holding up well, even though a significant portion are more than seven years old.

Maine maintains a primarily decentralized vehicle registration process. Three hundred eighty-one (381) Maine municipalities are authorized to issue Maine registration plates. Given the number of different plates that Maine offers, this creates an inventory control problem both for the state and each municipality. A general plate re-issuance would be challenging for the respective municipal staffs and BMV.

## PLATE MANUFACTURING PROCESS

Current Maine law (29-A MRS §451, sub-§6) requires that registration plates be made at the Maine State Prison. Maine has used the same basic process to manufacture plates since approximately1964 although processes and equipment have been periodically upgraded. In general, the current process, although highly manual, works well and is considered cost-effective. However, producing multiple lines of plate inventory can be challenging. See Appendix D for a summary of the plate manufacturing process.

All plates are manufactured at the prison plate shop by a staff of eight to nine inmates and two supervisory staff. The facility is able to produce approximately 400,000 to 500,000 plate sets per year. (Most sets are of two plates, although trailers, truck tractors, motorcycles and some other classes have one plate.)

Three vendors provided information on plate production and distribution systems. Information was provided on plate life, embossed versus flat plate production, cost, and alternative distribution methods. In general there seems to be no significant quality differences between flat and embossed plates. Embossed plates are somewhat less expensive to produce. Vendor presentation information is available from the Bureau of Motor Vehicles upon request.

## AMERICAN ASSOCIATION OF MOTOR VEHICLE ADMINISTRATORS PRESENTATION

Catherine Curtis, Director of Vehicle Programs for the American Association of Motor Vehicle Administrators (AAMVA), presented AAMVA's best practices for registration plates. In general, Maine conforms to most of AAMVA's best practice recommendations. Ms. Curtis noted some areas where Maine could make improvements such as prohibiting plate frames that obscure any portion of the plate; removing the red "V" on the veterans' plate which is often confused with part of the plate number; and the reduction or elimination of duplicate plates in different class codes. She noted that for some plate classes, the numbering bleeds into the plate graphic. Ms. Curtis' presentation is contained in Appendix E.

Ms. Curtis also provided the study committee AAMVA's letter in support of maintaining front and rear plates. Most vehicle identification is by the front plate, i.e. vehicles approaching a law enforcement officer. A recent study by the Virginia Department of Motor Vehicles found that the cost savings associated with a single plate are modest.[1] Upon request, Virginia's report can be provided.

Switching to a single plate might discourage vanity plate and specialty plate sales, thus adversely affecting state revenues.

## VENDOR INFORMATION

The study committee received oral and written information from the 3M Company, J. R. Wald Company, and the Irwin Hodson Group. The companies provided information on different plate manufacturing processes; plate durability and reflectivity; and general cost information. Information also was provided on studies and work done in other jurisdictions.

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[1] License Plate Study "An Assessment of the Current State of License Plates and Their Potential to Promote Public and Highway Safety and to Contribute to Transportation Funding in Virginia" November 9, 2012, Virginia Department of Motor Vehicles

The reflectivity of plates diminishes over time with UV light having the biggest impact. The plate may still look good to the naked eye during the day, but the nighttime visibility is lessened. Plate readers also have a harder time reading the plate at night.

The study committee received conflicting information regarding digital flat plates versus traditional embossed plates. On balance, there appears to be little qualitative difference between digital and embossed plates. Digital plates are more expensive to produce, but the digital process provides more flexibility.

Direct mail plate distribution, using an inmate workforce, is being done in Maryland, New York, Colorado and Washington. There are concerns relative to whether inmates should have access to registrant information; however, there are technical solutions to protect the public.

Maine's current registration plate specifications may be too restrictive, affectively barring otherwise qualified companies from bidding on providing plate materials.

## ISSUES OF CONCERN

The study committee identified several registration plate issues. Worn, damaged, faded, or obscured plates present a problem for law enforcement, tolling agencies, and others who need to accurately and quickly read plates, either manually or by electronic means. As the use of electronic plate readers becomes more prevalent for law enforcement agencies and tolling authorities throughout the United States, electronic readability becomes critical. Steps should be taken to reduce mis-reads and misidentification among plate classes. This can be accomplished by issuing and maintaining well-designed plates that can be accurately identified.

The study committee discussed making an evaluation of the registration plate a part of the inspection process. The Maine State Police opined that it is very difficult to objectively evaluate a plate, and that the condition of the plate is not a safety issue. It currently is a violation to display a plate that is obscured or not legible.

As a practical matter, registration plates need to last a long time. Some long term trailer plates are issued for up to twenty-five years. The current embossed plate process produces a quality plate at a cost that is less than the cost of a flat plate. Inventory management is an issue that would be exacerbated by the addition of any additional plate classes, i.e. specialty plate classes.

The study committee specifically considered and evaluated an "on-demand" plate production system. In such a system, rather than producing, storing and distributing plate inventory to municipalities and BMV branches, plates would be printed on demand and mailed to the registrant. The committee concluded that such a system would not work well with Maine's current decentralized registration process, and would result in additional printing and mailing costs. Registrants are accustomed to leaving their town office with their plates in hand. Large volumes of inventory still would need to be produced for trailer fleets and other large volume registrants. BMV estimates that it would cost approximately one hundred thousand dollars in initial investment to switch from the current production process to a digital plate process. Ongoing costs for materials also would increase.

No one on the study committee identified any significant problems with the BMV registration database (except for the duplication of plate numbers and vanity plates among classes.) Law enforcement is able to quickly and accurately retrieve registration information. The Maine Municipal Association was not aware

of any significant issues involving excise tax evasion. Issuing new plates (with different numbers) could affect municipal parking enforcement, and other enforcement tied to registration numbers.

## FINDINGS AND PROPOSED RECOMMENDATIONS

The study committee makes the following findings and recommendations:

Maine should retain its current manufacturing process for embossed plates.

- The current process is less expensive than digital flat plates
- Quality differences between embossed and digital plates are nominal.
- The BMV/Department of Corrections relationship works well for both parties.
- There are no significant readability issues with the current plate(s).
- Life expectancy is the same for digital and embossed plates

The Committee finds that there is no need for a general reissue of the standard chickadee plate classes. However, consideration should be given to a systematic replacement process. As much as twenty percent of standard chickadee plates may be ten or more years old. Generally, plate age can be determined by the number sequence. See Appendix F for letter sequences and when produced. Registrants should be encouraged to replace older plates when they notice that the plates are worn or damaged, or when advised to do so by their inspection station or by law enforcement. Laws regarding the obscuring of plates and plate legibility should be clarified and strengthened.

A visual plate inspection should be part of the inspection process, with severely worn plates being required to be replaced. BMV should work collaboratively with the State Police for establishing a plate inspection process.

The American Association of Motor Vehicle Administrators' Best Practices for Registration Plates recommends periodic plate replacement. Several states, including Virginia and Iowa have implemented periodic replacement programs based on plate age.

A partial, systematic plate replacement process for standard chickadee plates would be much less costly and less disruptive than a full replacement over the course of one year. To accomplish this, the Committee recommends the following:

- Initially replace standard chickadee plates over a four-year period and one year at a time moving forward therefore establishing a ten-year reissue cycle.
- FY18, beginning July 1, 2017: Plates originally issued in 1999 and 2000 will be replaced.
- FY19, beginning July 1, 2018: Plates issued in 2001 through 2005 will be replaced.
- FY20 beginning July 1, 2019: Plates issued in 2006 through 2008 will be replaced.
- FY21, beginning July 1, 2020: Plates issued in 2009 through 2010 will be replaced.
- After FY21: Plate replacements will occur one year at a time.

The estimated cost of a partial, systematic plate replacement process for standard chickadee plates is approximately $400,000 per year for the first four years. There is an on-going cost of $250,000 to $350,000 per year to maintain a license plate replacement cycle on an annual basis. The bulk of these costs consist of materials (aluminum and scotchlite), postage and letters. In the first year, new equipment estimated to cost $265,000 for an embosser, feeder and UV machines would be needed to produce license plates more efficiently especially for reserved number plates. A summary of projected costs is shown at Appendix G.

Additionally as a part of the replacement process, BMV needs to implement a new numbering sequence for passenger plates. The Committee recommends that the new numbering sequence, yet to be determined by BMV, coincide with the replacement of plates beginning in FY18.

The Committee recommends that BMV create a new flag mechanism within their vehicle registration database to effectively identify when plates are being issued to customers; consequently, providing BMV with the appropriate tool to accommodate and implement the rolling ten-year reissue cycle for all plates issued by the agency.

Furthermore, the Committee recommends that other specialty and standard plate classes that are not personalized and meet the ten-year old aging cycle be replaced with a new set of plates. All vanity plates, whether standard or specialty, will be replaced with the same personalized sequence and in accordance with the 10-year rolling reissue policy.

The Committee recommends that some plate classes be reviewed and revamped for further compliance with a new design and unique numbering system. For example, the red "V" on the Veterans plate often is construed as part of the plate number, resulting in mis-identification. Furthermore, stacked class codes, i.e. Conservation plates, often are read as part of the plate number. Stacked class codes should be phased out in favor of unique numbering systems for analog plate classes.

The Conservation (loon) plate is the oldest of the specialty plates. The Committee recommends that consideration be given to develop a new design and replace the existing plate. Currently, there are approximately 44,000 active loon plates.

The readability of (front and rear) plates will become even more important with the further use of cameras and LPRs for tolling, parking and red light enforcement; and other automated screening. The Committee recommends that State of Maine should continue to require front and rear plates for most vehicle types. Plate covers and plate brackets which obstruct any part of the plate should not be allowed.

There appears to be no significant database or registration/excise tax issues with the current plates and BMV should develop a plan to purge obsolete registration data.

The Committee recommends that there should be no further duplication of numbers or vanity plates across analogous plate classes. Duplication leads to significant misidentification, especially in other jurisdictions resulting in improper assessments. Each plate class (for passenger-type vehicles) should have a unique numbering schema consisting of alphanumeric values only.

The Committee recommends that consideration be given to retire certain low volume plates such as the Conservation Disabled plate (243 active registrations); Conservation Motor Home plate (112 active registrations); Conservation Trailer plate (207 active registrations); Disabled Motor Home plate (42 active registrations); and lastly, the Lobster Commercial plate (85 registrations.)

The Committee recommends that all passenger-type registrations should be allowed to be registered up to 10,000 pounds capacity.

## SUMMARY

In general, Maine's registration plates conform to AAMVA recommended standards. Some adjustments should be made for certain plate classes to improve conformance.

Maine should continue with its current plate manufacturing, inventory and distribution process. The current process is the most cost-effective and efficient process given Maine's decentralized registration process.

A general re-issue of the standard registration plate is not recommended at this time. Consideration should be given to identifying worn or damaged plates, and replacing them on as needed basis. Additionally, chickadee plates over ten years old should be replaced on a rolling reissue basis.

Maine should continue to issue and require front and rear plates on most motor vehicles in order to aid law enforcement, toll collections, and other governmental functions.

The further duplication of plates in different classes should be disallowed. Each major plate type should have a unique numbering schema.

The Conservation (loon) plate should be considered for replacement due to the length of time the plate has been in existence. BMV should work with the Department of Conservation on a potential replacement.

Consideration should be given to retire certain low-volume plates such as those mentioned within this report.

Appendix A: Charge Letter



April 17, 2014

Secretary Matthew Dunlap
Office of the Secretary of State
148 State House Station
Augusta, Maine 04333-0148

RE: Reissue of Standard Vehicle License Plate

Dear Secretary Dunlap:

During work sessions for LD 1788, there had been discussions in regards to a possible amendment to direct the Office of the Secretary of State to convene a study group to examine the reissue of the standard vehicle license plate. However, it was conveyed to the Joint Standing Committee on Transportation (Committee) that an amendment was not necessary, but rather a letter indicating the Committee's preference for such a study would be sufficient to begin the process. Therefore, the Committee is requesting that that your office convene such a study group to examine the reissue of the standard vehicle license plate.

When creating this group, the Committee requests that in addition to representation from your office, that representatives from the Maine State Police, local law enforcement, and the Maine Turnpike Authority are also invited to participate. It would also be appropriate to include other parties that are involved with the production, distribution and use of license plates.

The study group should evaluate the benefits and costs of license plate reissue to law enforcement, transportation safety, and state revenue. Additionally, the study group should consider new technologies for license plate production and distribution that are currently available and in use in other states. It would be beneficial for the group to review the license plate reissue that occurred in 1999-2000, and recommend changes to the process that would either improve benefits or decrease costs.

The Committee requests that you provide your recommendations on this matter by January 15, 2014. At that time the Committee may also request a presentation on the subject matter and recommendations.

Your attention to this matter is greatly appreciated.

Sincerely,

Edward J. Mazurek
Senate Chair

Charles Kenneth Theriault
House Chair

cc: Members of the Transportation Committee
John Melrose, Eaton Peabody Consulting Group

100 STATE HOUSE STATION, AUGUSTA, MAINE 04333-0100 TELEPHONE 207-287-4148

Appendix B: Committee Members

| Committee Members | |
|---|---|
| **Name** | **Department** |
| **Peter Mills, Executive Director** | Maine Turnpike Authority |
| **Richard Somerville, E-ZPass Manager** | Maine Turnpike Authority |
| **Conrad Welzel, Government Relations Manager** | Maine Turnpike Authority |
| **Scott Ferguson, Director** | DAFS – Corrections Service Center |
| **Robert Walden, Deputy Warden** | Department of Corrections, Maine State Prison |
| **Scott Reiff, Director of Industries** | Department of Corrections |
| **Kate Dufour, Senior Legislative Advocate** | Maine Municipal Tax Collector's and Treasurer's Association |
| **David Little, Tax Collector/Deputy Treasurer** | City of Bangor |
| **Catherine Curtis, Director of Vehicle Programs** | American Association of Motor Vehicle Administrators (AAMVA) |
| **Lieutenant Brian Scott** | Maine State Police, Traffic Safety Unit |
| **Chief Edward Googins** | South Portland Police Department |
| **Patty Morneault, Deputy Secretary of State** | Bureau of Motor Vehicles |
| **David Lachance, Director of Administrative Services** | Bureau of Motor Vehicles |
| **Garry Hinkley, Director of Vehicle Services** | Bureau of Motor Vehicles |
| **David Guilmette, Director of Office of Investigations** | Bureau of Motor Vehicles |
| **Robert Johnson, Supervisor of Office Services, Stockroom** | Bureau of Motor Vehicles |
| **Kathy Beaudoin, Financial Analyst** | Bureau of Motor Vehicles |
| **Marc Theberge, Business Services Manager** | Bureau of Motor Vehicles |
| **Clarissa Hurley, Online Services Manager** | Bureau of Motor Vehicles |
| **Leslie Soares, Secretary Specialist** | Bureau of Motor Vehicles |
| **Guests** | |
| **Steve Edwards, Government Services Manager** | 3M Company |
| **Lynn Conaway, Sales and Marketing Manager** | John R Wald Co., Inc. |
| **Irwin Hodson Group** | Provided written information only |

Appendix C: Plate Table

| | Plate Name | Class Code | Plate Image | 2014 |
|---|---|---|---|---|
| 1. | Antique Auto | AQ |  | 18,630 |
| 2. | Buses | BU |  | 1,371 |
| 3. | Combination | CM |  | 7,988 |
| 4. | Commercial | CO |  | 89,464 |
| 5. | Commercial Tractor | TT |  | 1,871 |
| 6. | Custom Vehicle | CV |  | 187 |
| 7. | Disability | DX |  | 12,258 |
| 8. | Disability Motor Home | WX |  | 4,162 |
| 9. | Dune Buggy | PC |  | Included in row 16 |
| 10. | Farm Truck | FM |  | 5,800 |
| 11. | Horseless Carriage | HC |  | 35 |
| 12. | Initial Vanity | PC |  | Included in row 16 |
| 13. | Low-Speed Vehicle | LS |  | 47 |
| 14. | Motor Home | MH |  | 4,023 |
| 15. | National Guard | PC |  | Included in row 16 |
| 16. | Passenger & Passenger Short Term Rental | PC |  | 816,882 |
| 17. | Special Equipment | SE |  | 4,914 |
| 18. | Stock Car | PC |  | Included in row 16 |

| | Plate Name | Class Code | Plate Image | 2014 |
|---|---|---|---|---|
| 19. | Street Rod | SR |  | 642 |
| 20. | Tractor/ Special Mobile Equipment | TR |  | 1,899 |

Appendix D: Plate Production Process

CURRENT MANUFACTURING METHOD -- BASIC STEPS - Plates are manufactured at the State Prison facility in Warren.

Title 29-A MRSA S451, sub-S6 states:

6. Plates to be manufactured at the State Prison. The Secretary of State or the duly designated official in charge of the vehicle registration shall purchase and cause to be installed at the State Prison the necessary equipment and materials for the production of all vehicle registration plates used in the state.

The job of manufacturing license plates is completed with a staff of two staff supervising eight or nine inmates, all of whom must be "model prisoners within six months of their release date."

The basic steps involved are listed below:

**A**. Raw Aluminum - Sheets of raw aluminum are delivered in rolls weighing 1200 - 2000 pounds. One roll of aluminum produces about 1800 single or 900 sets of plates.

**B**. Hot Water Tank - The rolls of aluminum are placed onto a reel that feeds the sheets through a hot water tank to clean and heat the metal.

**C**. Straightening Machine - The aluminum then passes through a straightening machine which removes all dents.

**D**. Applicator - The 3M applicator machine aligns the aluminum sheets with sheets of 3M Scotchlite laminate, which is applied to the warmed metal. Scotchlite is the brand name of reflective sheeting, which comes in rolls and has adhesive on the back. We are currently using plain, two-color graphic and four-color graphic sheeting.

**E**. Blanking Press - The blanking press cuts the plates, rounds the corners and cuts the holes at a rate of approximately one plate per second. This machine is about 30 years old.

**F**. Conveyor Belt - The plates come down a short conveyor belt where they are straightened and stacked by hand in trays holding 750 plate blanks each.

**G**. "New" Hydraulic Press - All paired plates (issues requiring front and back plates) are processed on the "new" hydraulic press, which was purchased in 1986. The production rate can be as much as 700 pairs of plates per hour. Three people are needed to run the press.

**H**. Feeder - One person feeds the plates through a safety feeder that prevents the operator's hands from entering the press.

**I**. Operator - A second person changes the letters and numbers manually for each set of two plates. As a safety feature, the operator must raise both hands up and press two large buttons to start the hydraulic press. A set of sample plates hangs on the wall for reference, so the press operator can set up the correct letter/number spacing and sequencing for each type of plate.

**J**. Catch/Inspect/Stack - A third person catches the pressed plates as they come down a conveyor belt. He inspects each pair of plates to insure that the plates are being produced in sequence and that the press was a good one. He then stacks the plates.

**K**. "Old" Mechanical Press - All single plates (and rarely some paired plates) are processed on the mechanical press, which was purchased in 1952. It is much noisier than the hydraulic press, is expensive to repair, and breaks down often. The machine also normally requires three operators to run it. Maximum production rates are about 850 plates per hour. Motorcycle plates are produced by a single operator, but the process is much slower - about 800 plates per day.

**L**. Numeral Coater - This machine (also known as a roller/coater and as a printer) applies opaque paint with a roller to all raised sections of each plate, which includes the letters, numbers and rim. Two people must operate the numeral coater; one feeds the plates in and a second transfers them to a drying rack.

**M**. Drying Racks - Each painted plate is manually placed on a drying rack.

**N**. Oven - The drying racks automatically circulate through a 250-degree oven located on the second floor of the plate shop. The entire drying trip takes about an hour.

**O**. Completed Plates - Finished dry plates are manually removed from the drying racks.

**P**. Sealing Machine - Every pair of plates and each single plate is shrink wrapped in plastic. One man runs this machine.

**Q**. Packaging - Groups of either 25 pairs or 50 single plates are packaged for shipment.

**R**. Pallets - The packaged plates are placed in groups of 5,000 plates onto pallets for shipping to the Bureau of Motor Vehicles Main Office in Augusta. All plates are then distributed from the Main Office Stockroom.

Appendix E: AAMVA Best Practices & Support Letter

# AAMVA Best Practices for License Plate Design and Manufacture - Cathie Curtis

Adopting the AAMVA best practices for plate design and manufacture provides more accurate plate identification for law enforcement, tolling authorities and other license plate end users.
License plates serve a common purpose across jurisdictions. They should also share common characteristics that allow readability, usability and connections to vehicle registration records.
**License Plate Display** – Maine complies with AAMVA's best practices in most areas related to license plate display. One area to consider might be to introduce legislation prohibiting license plate frames and covers.
**Dimensions and Reflectivity** – Maine complies with most of AAMVA's best practices with the exception of a regular reissuance/replacement plan to ensure that the plate remains retro-reflective and the information displayed remains legible.
**Graphics** – Graphics on license plates should not distort or interfere with the readability of the alphanumeric characters or with any other identifying information on the plate by either human eye or machine readable technology such as automated license plate readers (ALPR).
The "V" on Maine veteran's plate can cause problems. It can easily be picked up as part of plate number. The decal does not have as long life expectancy as the plate.
**Jurisdiction of Origin and Plate Number Placement** – Maine complies with AAMVA's recommendations.
**Plate Numbers** – Maine complies with AAMVA's recommendations. Maine does not use any characters with the exception of the disability plate.
**Unique Plate Numbers** – AAMVA recommends that each plate number combination in a jurisdiction should be unique and not duplicated on different types of plates. Maine currently duplicates plate numbers across different class codes.
**Fonts** – AAMVA recommends standardized fonts and font sizes that clearly distinguish alphas and numeric should be used. For example, similar characters like A and R, 8 and B, and 0(zero), O and Q should be easily distinguishable from each other.
**Stacked Characters** – Where stacked and half-height characters are used, it is recommended the characters be part of the official plate number. This leaves Purple Heart and Conservation plate at risk for being misread. No more than two characters should be stacked. Trailer and University plates use three characters.
**Plate Type Identifiers** – Plate type identifiers displayed on license should be standardized and placed in a uniform location on the license plate. Maine mostly complies with this practice with the exception of Bus and Horseless Carriage plates.
**Specialty Plates** – Placement and use of logs and graphics should be uniform to provide improved jurisdiction identification. Maine mostly complies with this with the exception of the graphics on the Animal Welfare plates.
**Decorative Plates** – Maine complies with AAMVA's best practices.
**Decals** – Motor Vehicle agencies should consult with jurisdictional law enforcement and if applicable, local law enforcement prior to adopting new color schemes for registration stickers.
**Security Features** – Maine complies with AAMVA's best practices.

**American Association of Motor Vehicle Administrators**

AAMVA

Anne S. Ferro
President and CEO

Mark D. Lowe, Chair of the Board
Director, Motor Vehicle Division
Iowa Department of Transportation

Patty Morneault, Deputy Secretary of State
Maine Bureau of Motor Vehicles
29 SHS
Augusta, ME 04330

September 29, 2014

Dear Ms. Morneault,

The American Association of Motor Vehicle Administrators (AAMVA) membership is comprised of the state and provincial departments of motor vehicles throughout North America and the state police/highway patrol agencies in the Unites States.

This letter is provided to express strong support for Maine's current statutory requirement for two license plates, to be displayed on the front and rear of vehicles. This support is consistent with the AAMVA License Plate Policy Statement (revised August 2013) which states, in part:

*AAMVA supports the horizontal display of a front and rear plate and the uniform manufacture and design of plates, to increase the effective and efficient identification of license plates. Jurisdictions are encouraged to adopt the best practices identified in AAMVA's Best Practices Guide for Improving Automated License Plate Reader Effectiveness through Uniform License Plate Design and Manufacture.*

*The use of common characteristics and predictable designs on license plates will enhance readability, usability, and connections to vehicle registration records. It will also support law enforcement efforts and highway safety, and may increase certain revenue collection which is dependent upon license plate identification, such as toll collection and parking regulations.*

The best practices guide referred to in the aforementioned excerpt from our policy statement can be found at: http://www.aamva.org/Best-Practices-and-Model-Legislation/

Thank you for the opportunity to share this information with you.

Sincerely,

Cathie Curtis, AAMVA, Director, Vehicle Programs

cc: Members of the Maine License Plate Task Force
Ian Grossman, AAMVA, Vice President, Member Services and Public Affairs
Brian Ursino, AAMVA, Director, Law Enforcement

An International Safety Association of Motor Vehicle and Law Enforcement Administrators

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Appendix F: Letter Sequences and Years Produced

| Standard Chickadee Plate Inventory by Letter Sequence and Production Year | | | | | |
|---|---|---|---|---|---|
| **Year** | **Beginning Sequence** | **Ending Sequence** | **Active Count** | **Percent** | **Cumulative%** |
| **1999** | EM | IR | 68,571 | 10.0% | 10.0% |
| **2000** | IS | JW | 25,636 | 3.7% | 13.7% |
| **2001** | JX | KQ | 15,184 | 2.2% | 15.9% |
| **2002** | KR | LE | 13,865 | 2.0% | 17.9% |
| **2003** | LG | MA | 22,535 | 3.3% | 21.2% |
| **2004** | MB | MU | 25,341 | 3.7% | 24.9% |
| **2005** | MV | NM | 27,314 | 4.0% | 28.8% |
| **2006** | NP | PE | 30,521 | 4.4% | 33.3% |
| **2007** | PF | PX | 33,757 | 4.9% | 38.2% |
| **2008** | PY | RH | 37,967 | 5.5% | 43.7% |
| **2009** | RI | RW | 40,997 | 6.0% | 49.7% |
| **2010** | RX | SJ | 44,887 | 6.5% | 56.2% |
| **2011** | SK | SY | 60,729 | 8.8% | 65.0% |
| **2012** | SZ | TM | 77,906 | 11.3% | 76.3% |
| **2013** | TN | UB | 103,944 | 15.1% | 91.4% |
| **2014** | UC | UM | 58,980 | 8.6% | 100.0% |
| **Total** | | | **688,134** | | |

Appendix G: Estimated Cost Summary

## Estimated Cost for Systematic Plate Replacement

| (Fiscal Year) | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|---|---|---|---|---|---|---|---|---|
| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | Year 8 |
| **MFG years being replaced (calendar year)** | **1999-2000** | **2001-2005** | **2006-2008** | **2009-2010** | **2011** | **2012** | **2013** | **2014** |
| **Counts** | | | | | | | | |
| # of Plates reissued (PC class code) | 108,856 | 103,071 | 101,241 | 84,566 | 59,801 | 76,542 | 101,503 | 70,566 |
| # of other Plates (other than PC class codes) | 20,763 | 20,028 | 21,363 | 17,923 | 11,834 | 14,956 | 13,502 | 8,946 |
| **Total Plates to be re-issued** | **129,619** | **123,099** | **122,604** | **102,489** | **71,635** | **91,498** | **115,005** | **79,512** |
| Estimated # reserved (PC's) | 20,704 | 8,246 | 8,099 | 6,765 | 4,784 | 6,123 | 8,120 | 5,645 |
| Estimated # reserved (Other plates) | 1,661 | 1,602 | 1,709 | 1,434 | 947 | 1,196 | 1,080 | 716 |
| **Total Plates estimated to be reserved** | **22,365** | **9,848** | **9,808** | **8,199** | **5,731** | **7,320** | **9,200** | **6,361** |
| **Diff - total sets less reserves** | **107,254** | **113,251** | **112,796** | **94,290** | **65,904** | **84,178** | **105,805** | **73,151** |
| **% of reserved plates** | **17%** | **8%** | **8%** | **8%** | **8%** | **8%** | **8%** | **8%** |
| **Costs** | | | | | | | | |
| Postage for reserved plates | 59,938 | 26,392 | 26,286 | 21,974 | 15,359 | 19,617 | 24,657 | 17,047 |
| Surcharge (mail Room) .16 | 9,590 | 4,223 | 4,206 | 3,516 | 2,457 | 3,139 | 3,945 | 2,728 |
| Envelopes for plates (reserved) | 3,355 | 1,477 | 1,471 | 1,230 | 860 | 1,098 | 1,380 | 954 |
| Reserved letter with tear off (19.92) 100,000 | 2,590 | 2,490 | 2,490 | 2,092 | 1,494 | 1,892 | 2,390 | 1,594 |
| Mailing of Reserved letter/form | 57,032 | 54,164 | 53,946 | 45,095 | 31,519 | 40,259 | 50,602 | 34,985 |
| Surcharge (mail Room) .16 | 9,125 | 8,666 | 8,631 | 7,215 | 5,043 | 6,441 | 8,096 | 5,598 |
| Pre-addressed envelopes | 2,592 | 2,462 | 2,452 | 2,050 | 1,433 | 1,830 | 2,300 | 1,590 |
| Envelopes for mailing letters/forms | 2,592 | 2,462 | 2,452 | 2,050 | 1,433 | 1,830 | 2,300 | 1,590 |
| 2 additional Inmates | 21,216 | 21,216 | 21,216 | 21,216 | 21,216 | 21,216 | 21,216 | 21,216 |
| Costs per set of plates | 278,681 | 264,663 | 263,599 | 220,351 | 154,015 | 196,721 | 247,261 | 170,951 |
| Maintenance for embosser | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 |
| Maintenance for Applicator/Registry system | 6,000 | 6,000 | 6,000 | 6,000 | 6,000 | 6,000 | 6,000 | 6,000 |
| (applies the sheeting to the aluminum) | | | | | | | | |
| | | | | | | | | |
| **Sub Totals - Sta Cap Base** | **455,712** | **397,215** | **395,749** | **335,788** | **243,829** | **303,043** | **373,148** | **267,253** |
| | | | | | | | | |
| Sta Cap Rate ( .04857) | 22,134 | 19,293 | 19,222 | 16,309 | 11,843 | 14,719 | 18,124 | 12,980 |
| | | | | | | | | |
| **Total All Other Costs** | **477,846** | **416,508** | **414,971** | **352,097** | **255,671** | **317,762** | **391,272** | **280,233** |
| | | | | | | | | |
| Embosser | 95,000 | | | | | | | |
| New Feeder | 20,000 | | | | | | | |
| 2 MV31 UV machines | 150,000 | | | | | | | |
| **Total Capital Costs** | **265,000** | | | | | | | |
| **Totals** | **742,846** | **416,508** | **414,971** | **352,097** | **255,671** | **317,762** | **391,272** | **280,233** |

# Estimated Cost for Systematic Plate Replacement

| (Fiscal Year) | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|---|---|---|---|---|---|---|---|---|
| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Year 7 | Year 8 |
| **MFG years being replaced (calendar year)** | **1999-2000** | **2001-2005** | **2006-2008** | **2009-2010** | **2011** | **2012** | **2013** | **2014** |
| **Counts** | | | | | | | | |
| # of Plates reissued (PC class code) | 108,856 | 103,071 | 101,241 | 84,566 | 59,801 | 76,542 | 101,503 | 70,566 |
| # of other Plates (other than PC class codes) | 20,763 | 20,028 | 21,363 | 17,923 | 11,834 | 14,956 | 13,502 | 8,946 |
| **Total Plates to be re-issued** | **129,619** | **123,099** | **122,604** | **102,489** | **71,635** | **91,498** | **115,005** | **79,512** |
| Estimated # reserved (PC's) | 20,704 | 8,246 | 8,099 | 6,765 | 4,784 | 6,123 | 8,120 | 5,645 |
| Estimated # reserved (Other plates) | 1,661 | 1,602 | 1,709 | 1,434 | 947 | 1,196 | 1,080 | 716 |
| **Total Plates estimated to be reserved** | **22,365** | **9,848** | **9,808** | **8,199** | **5,731** | **7,320** | **9,200** | **6,361** |
| **Diff - total sets less reserves** | **107,254** | **113,251** | **112,796** | **94,290** | **65,904** | **84,178** | **105,805** | **73,151** |
| **% of reserved plates** | **17%** | **8%** | **8%** | **8%** | **8%** | **8%** | **8%** | **8%** |
| **Costs** | | | | | | | | |
| Postage for reserved plates | 59,938 | 26,392 | 26,286 | 21,974 | 15,359 | 19,617 | 24,657 | 17,047 |
| Surcharge (mail Room) .16 | 9,590 | 4,223 | 4,206 | 3,516 | 2,457 | 3,139 | 3,945 | 2,728 |
| Envelopes for plates (reserved) | 3,355 | 1,477 | 1,471 | 1,230 | 860 | 1,098 | 1,380 | 954 |
| Reserved letter with tear off (19.92) 100,000 | 2,590 | 2,490 | 2,490 | 2,092 | 1,494 | 1,892 | 2,390 | 1,594 |
| Mailing of Reserved letter/form | 57,032 | 54,164 | 53,946 | 45,095 | 31,519 | 40,259 | 50,602 | 34,985 |
| Surcharge (mail Room) .16 | 9,125 | 8,666 | 8,631 | 7,215 | 5,043 | 6,441 | 8,096 | 5,598 |
| Pre-addressed envelopes | 2,592 | 2,462 | 2,452 | 2,050 | 1,433 | 1,830 | 2,300 | 1,590 |
| Envelopes for mailing letters/forms | 2,592 | 2,462 | 2,452 | 2,050 | 1,433 | 1,830 | 2,300 | 1,590 |
| 2 additional Inmates | 21,216 | 21,216 | 21,216 | 21,216 | 21,216 | 21,216 | 21,216 | 21,216 |
| Costs per set of plates | 278,681 | 264,663 | 263,599 | 220,351 | 154,015 | 196,721 | 247,261 | 170,951 |
| Maintenance for embosser | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 |
| Maintenance for Applicator/Registry system | 6,000 | 6,000 | 6,000 | 6,000 | 6,000 | 6,000 | 6,000 | 6,000 |
| (applies the sheeting to the aluminum) | | | | | | | | |
| | | | | | | | | |
| **Sub Totals - Sta Cap Base** | **455,712** | **397,215** | **395,749** | **335,788** | **243,829** | **303,043** | **373,148** | **267,253** |
| | | | | | | | | |
| Sta Cap Rate ( .04857) | 22,134 | 19,293 | 19,222 | 16,309 | 11,843 | 14,719 | 18,124 | 12,980 |
| | | | | | | | | |
| **Total All Other Costs** | **477,846** | **416,508** | **414,971** | **352,097** | **255,671** | **317,762** | **391,272** | **280,233** |
| **Estimated Revenues = (Reserved x $15)** | 335,476 | 147,719 | 147,125 | 122,987 | 85,962 | 109,798 | 138,006 | 95,414 |
| **Net All Other Costs - AO costs less revenues** | **142,370** | **268,789** | **267,846** | **229,111** | **169,709** | **207,965** | **253,266** | **184,819** |
| | | | | | | | | |
| Embosser | 95,000 | | | | | | | |
| New Feeder | 20,000 | | | | | | | |
| 2 UV machines | 150,000 | | | | | | | |
| **Total Capital Costs** | **265,000** | | | | | | | |
| | | | | | | | | |
| **Totals** | **407,370** | **268,789** | **267,846** | **229,111** | **169,709** | **207,965** | **253,266** | **184,819** |