

**THE HAMPTON TOWNSHIP BOARD  
ANNUAL MEETING  
MINUTES  
March 9, 2010**

The meeting was called to order by the clerk, Jeanne Werner at 8:20 p.m. on March 9, 2010.

The Pledge Allegiance to the Flag was stated.

Nominations were open for a Moderator. Leo Nicolai was nominated to be the moderator by Ray Nicolai, seconded by Bill Tix and unanimously passed to close the nominations.

A motion was made by Donna Otto, seconded by Bill Tix and unanimously passed to have Leo Nicolai as the moderator.

Leo Nicolai read the remaining items on the agenda.

The minutes from the 2009 Annual Meeting were read by the Clerk, Jeanne Werner. A motion was made by Bob Leifeld, seconded by Jim McKenzie and unanimously passed to approve the minutes as read.

A motion was made by Bill Tix, and seconded by Jeremy Irrthum and unanimously passed to waive the reading of all the checks written and received. There were copies of the financial report including a list of all the disbursements and receipts for 2009.

The financial report was given by Treasurer, Leo Nicolai. The beginning balance of 2010 for the township checkbook was read, \$176,590.17. He read the beginning balance of the Cemetery fund which is \$1,223.09 plus interest of \$236.17 less mowing expense of \$590.00, the ending balance is \$\$869.26. The Cemetery CD was a balance of \$7,000.00. A motion was made by Bill Tix, seconded by CaSondra Schaffer to approve the financial report and was unanimously passed.

The road report was given by Supervisor, Bob Leifeld. We are in need of gravel on the township roads. The Supervisors will go on a road tour and decide which roads are needing attention.

Donna Otto gave a report on the Audit Meeting which was January 13, 2010. The clerks and the treasurer's books balanced with the bank statement and were approved.

The Levy was discussed. The General Fund was \$60,000 last year. The new suggested levy amount for the General fund was \$87,000 due to increasing cost. It was also discussed that there will be less funding from the State of Minnesota. We are also in need of a fire proof filing cabinet for the township. A motion was made by Jim McKenzie, seconded by Donna Otto to approve the levy amount of \$87,000 and was unanimously passed.

# Mathematical Analysis of a System

## 1. Introduction

The system under study is defined by the following parameters:

$$A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$$

The system is represented by the matrix equation  $\dot{x} = Ax$ , where  $x$  is the state vector.

$$x = \begin{bmatrix} x_1 \\ x_2 \end{bmatrix}$$

The eigenvalues of the matrix  $A$  are found by solving the characteristic equation  $\det(A - \lambda I) = 0$ .

$$\det \begin{bmatrix} 1 - \lambda & 2 \\ 3 & 4 - \lambda \end{bmatrix} = (1 - \lambda)(4 - \lambda) - 6 = \lambda^2 - 5\lambda - 2 = 0$$

The roots of this quadratic equation are the eigenvalues  $\lambda_1$  and  $\lambda_2$ .

$$\lambda_{1,2} = \frac{5 \pm \sqrt{25 + 8}}{2} = \frac{5 \pm \sqrt{33}}{2}$$

Since the eigenvalues are real and distinct, the system is stable if both eigenvalues have negative real parts. In this case,  $\lambda_1 > 0$  and  $\lambda_2 < 0$ , indicating a saddle point.

The corresponding eigenvectors  $v_1$  and  $v_2$  are found by solving  $(A - \lambda_i I)v_i = 0$ . For  $\lambda_1 = \frac{5 + \sqrt{33}}{2}$ , the eigenvector  $v_1$  is approximately  $\begin{bmatrix} 1 \\ 1.5 \end{bmatrix}$ . For  $\lambda_2 = \frac{5 - \sqrt{33}}{2}$ , the eigenvector  $v_2$  is approximately  $\begin{bmatrix} 1 \\ -1.5 \end{bmatrix}$ .

The general solution of the system is given by  $x(t) = c_1 e^{\lambda_1 t} v_1 + c_2 e^{\lambda_2 t} v_2$ .

The system exhibits exponential growth along the direction of  $v_1$  and exponential decay along the direction of  $v_2$ .

The phase portrait shows trajectories that approach the origin along the stable manifold and depart along the unstable manifold. The origin is a saddle point.

The Road and Bridge Fund was \$120,000 last year. The new suggested levy amount for the Road and Bridge was \$155,000. Discussion was made to implement a chloride program for the residents. The township was going to pay 50% up to 400 feet. The township will be checking prices with Dakota County to see what type of discount we could get off the product and then hire someone to spread it. The roads are also in need of gravel which will also be an increasing expense. A motion was made by Jim McKenzie and seconded by Bill Tix to approve the levy amount of \$155,000 for the Road and Bridge Fund and was unanimously passed.

The Fire Fund was \$31,000 last year. The new suggested levy amount for the Fire Fund is \$40,000. Discussion was made that Hampton-Randolph Fire contract should remain the same until 2013. The Cannon Falls Fire Department contract was unknown at this time. A motion was made by Jim McKenzie, seconded by CaSondra Schaffer and was unanimously passed to increase the Fire Fund to \$40,000.

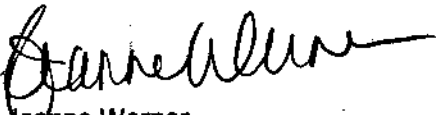
The March 9<sup>th</sup> 2010 Election report was given by Clerk, Jeanne Werner. The position that was voted on was for a 3 year Supervisors position. There were 45 ballots. Donna Otto had 44 votes and there was 1 write-in. Donna Otto is the new Supervisor.

Discussion were made regarding the proposed chloride program . It was discussed that a letter will go out to the residents of the township that live on gravel roads, along with posting it in the Cannon Falls Paper and the Hampton Township's website. It was discussed that the township would pay 50% of the expense for the first application. If additional applications are need, it would be 100% at the expense of the resident. Also, there was discussion on weed spraying along with brush cutting.

A motion was made by Bob Leifeld, seconded by Donna Otto and unanimously passed to start the March 8, 2011 Annual Meeting at 8:15 p.m.

A motion was made by Bob Leifeld, seconded by Bill Tix and unanimously passed to adjourn the meeting. Meeting was adjourned at 9:20p.m.

Respectfully Submitted;



Jeanne Werner  
Hampton Township Clerk

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