

# GISette

City of Marlborough  
Massachusetts



A quarterly newsletter to broaden people's understanding of mapping, geography and the City's Geographic Information System

Volume 4, Issue 2

Summer 2014

## Marlborough's Public Information Mapping Application (PIMA):

<http://gis.marlbrough-ma.gov>

**Greetings** once again from the *GISette*! Summer is almost over now and these warm lazy days will soon be another fond memory. As always, it's my great pleasure to present you with our latest newsletter. I've had a bit of writer's block as of late, so I apologize for the short absence. However, I was inspired the other day at the end of a recent trip I took and another fun topic presented itself to me. For those still unaware, we have a new Commissioner here at Public Works. John Ghiloni has filled some very big shoes and is settling in quite nicely. We also have a new City Engineer. Evan Pilachowski has come to us from Vermont and looks to be right at home already.

### ***Precision Nutrient Management***

#### *Mapping to grow our food*

It's now August here in New England. That means that 'summah-time', is starting to wind down. This all too brief period of three or so months means a lot of things to a lot of people in this part of the country. It means trips to the beach, weekend camping trips, short family vacations to Story-Land and Santa's Village and corn. Corn? That's right. Corn. August is when all that corn that was knee high by the fourth of July starts to come to market. You can buy it all year round, but there are very few things that are as delicious and oddly satisfying as fresh from the farm New England sweet corn. If I have to explain it, you won't understand. You can find it in the grocery stores, at roadside stands and farmers markets. There's almost always a sign that says "Fresh Local Corn", and it always flies off the shelves.

I was reminded of all of this the other day while waiting in line to get on a ferry home from Long Island. In front of me was a couple who had clearly stocked up on local corn on their way home. They had baskets of the stuff and had no problem eating four or five pieces while standing in line. It was an interesting sight to behold, and, it got me thinking.

Did you know that corn is the most widely planted crop in the United States and in the top 3 of the entire planet? That's a lot! It has different uses and comes in many forms, but growing corn successfully and sustainably is vital to people's survival. How to grow it is changing and geographic technologies are playing a major role in today's farming practices.

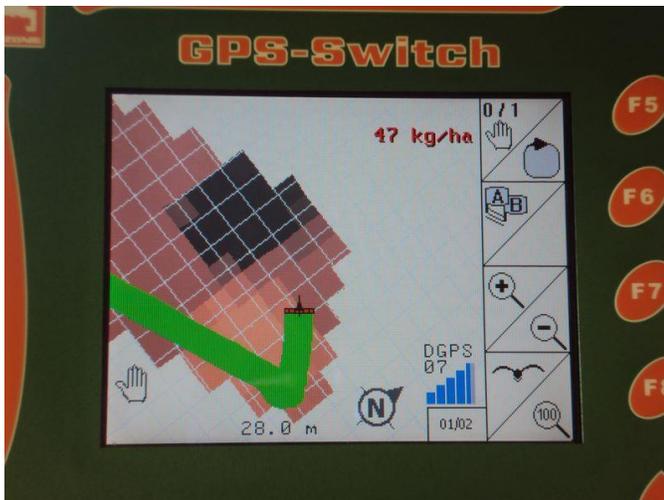


Photo showing a GPS unit with farm field on the display. The unit increases or decreases the fertilizer spread rates based on the areas that actually need it.

### **INSIDE THIS ISSUE**

- 1** *Precision Nutrient Management*
- 2** There's an app for that! – "Marlborough Works"
- 2** *Nutrient Management Cont.*

*Nutrient Management cont.*

The largest corn producing nations are gifted with vast tracts of land and enough water to make certain that crop yields are very high. Developing nations that grow corn are not always so fortunate. It can be any crop, really. Areas of the world that are susceptible to prolonged drought and soil erosion have a difficult time producing large crop yields. Much of the farming in developing nations is actually done on a small scale with individual farmers growing their own food or villages working together to produce what they need. The problem they run into is that their soils can't always support the crops they plant. The environment is often arid and soil conditions are less than ideal. As a result, they need to fertilize their crops, but that is expensive. Water is often at a premium and every drop needs to be maximized for its benefit. If they have no rain, they can have lean years with no previous surplus to fall back on. People are learning though that by mapping the conditions of their fields, they can feed the soil with the right fertilizers and increase output at less expense. Testing the soil for its nutrients is very easy and fairly inexpensive and gives farmers the leg up they need to farm more effectively

Fertilizers are applied because crops take nutrients from the soil in order to grow. Those nutrients need to be replaced. Phosphorous, nitrogen and so on are absorbed by the crop during its life cycle. Knowing which crops absorb what nutrients help the farmer replenish them. However, an entire field of the same crop is not depleted evenly in the same way. Some areas of a field may lose nutrients more rapidly than others. Some parts of a field may naturally contain more nutrients. Testing and sampling soil locations and then mapping those locations allow farmers to focus their fertilizer efforts. This sounds complicated but methods are available that require very little cost and they can be performed effectively in even in the most rural of environments. Utilizing these methods of mapping the field and soil conditions has the benefit of saving the rural farmer money in fertilizer and costs. By knowing what kind, how much and where to put fertilizers, farmers save wasted time and money by farming smart. This translates into larger crop yields and the ability to store surplus crops for the lean years. This can in turn help ward off issues of famine and further serve to help grow the overall health, economies and general stability of developing countries.

Closer to home, a farmer in Ohio can have many square miles of corn crop on his lands. Accurate mapping of his fields and his soils can save significant money and time. He also has access to more advanced technology. Just like GIS, site-specific farm management can be thought of as a series of layers of information about each field. Each time a measurement is taken, another layer of information is added. Over time, multiple layers of information are added and become part of the database that can guide future crop management decisions. By geo-referencing each data point to its precise geographic location, these data layers can be "stacked" for analysis to determine the relationship between layers for any point in the field. When fertilizing, the relationship between the nitrogen spread rate applied and yield obtained last year can be determined to continuously refine farming practices.

Mapping makes a difference in everybody's lives today whether they are aware of it or not. It is part of the cars we drive and the food we eat. Simple practices that improve efficiency and bring down costs. It saves us time and money and lets us to take family vacations to places where the corn grows fresh and sweet and we can eat it in line while waiting for the next ferry boat home.

***THERE'S AN APP FOR THAT!!  
MARLBOROUGH WORKS***



“Marlborough Works” is our new mobile app designed for residents. You can report potholes, graffiti, street light outages and more all from your smartphone or through the city website. To do this, simply log on to this City’s webpage and click on the “Marlborough Works” icon and follow the easy instructions. Help us make Marlborough an even better community!



City of Marlborough, Massachusetts  
Department of Public Works  
Engineering Division  
135 Neil Street  
Marlborough, MA 01752  
(508) 624-6910

***John L Ghiloni***  
Commissioner of Public Works  
***Evan Pilachowski, P.E.***  
City Engineer  
***Nathaniel Bowen, GISP***  
GIS Administrator