Weed Abatement
GIS in the City of Merced

Merced Fire Department
Weed Abatement Program
2011-2012
Inspection, Compliance, Cleanup

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Weed abatement inspections take place every spring in several California cities and counties where for many data gathering is still paper based and cumbersome. Searching for a way to use technology for this task, the City of Merced created a GIS web service using current ArcGIS Server technology that provides a more efficient and accurate way to gather and share the data. The web service, which includes imagery for reference and measurement, was very successful the first year. The second year proved even better.
**Program Description**

The Nuisance Abatement Program is designed to eliminate fire and health hazards associated with seasonal growths of weeds and other hazards such as the accumulation of litter, brush, rubbish, scrap wood and similar materials.
Regulatory Authority

The California Government Code allows the local legislative body (City of Merced) to declare by resolution an Abatement Program.

Merced Municipal Code Title 8, Section 8.40.270 contains the Special Nuisance Abatement Proceedings for Weeds and Rubbish adopted by the City.
Annual Surveys

Two to three inspection surveys done in the Spring, the first one is scheduled for three weeks.

City is divided by Parcel Books within the City Limits.

Fire survey crews are divided by station/shift and given parcel book(s) for their areas.

Crews begin the inspection surveys at the start of the program and turn in the books as they are completed.
Process prior to 2011

Each crew would drive down the streets in their inspection areas with the Assessor Parcel Books.

When a crew member noted a particular parcel with a hazard (weeds, debris pile, mattresses, and other assorted potential hazards), the associated parcel was coded (shaded in) with a predetermined color pencil.

After all the parcels in the book had been inspected and coded, the crew members would enter the parcel numbers into an Excel spreadsheet.
The Excel spreadsheet was turned into support staff for entry of the parcel numbers into a DOS print batch program.

Using the parcel numbers, the print batch program pulled the parcel owner’s information from the City database.

Then the support staff would run the print batch program to print the Weed Abatement notices and mail them out.

A copy of the Excel spreadsheet was then placed in the Parcel Books for the next survey for the fire inspection crews.
GIS Web Services

In 2010, it was suggested to use GIS technology to improve the current system.

Using ArcGIS desktop and server, a web service and application were developed with field editing capabilities.

Tested on Toughbook laptop.
Initial Issues

Aircard proved to be too slow. It was determined that best practice this first year would be to use the books in the field and transfer information in the office with a computer on the network, a combination of the old and new for 2011.

Short time for training of field crews and support staff.

Workflows had to be written for both the field inspection and post inspection data processing.
How it Works

- Using ArcGIS Desktop, an mxd was created to include all the data layers the inspection crews would need.
- This mxd was published to ArcGIS Server.
- A web service was created in ArcGIS Server with one editable SDE data layer – parcels. Functionality was built into this layer as requested by the inspection crews.
- All that is needed to use this service is a web browser on any City computer.
- Field crews, with an air card, can connect to the City network and use the service as well.
Inspection Workflow

• Fire crews drive through the areas in the parcel books assigned to them looking for hazards that would pose a fire risk.
• When a parcel is determined to be a hazard, it is color coded in the parcel book.
• Once crews return to station, using the web service on the city intranet, the data is entered into the SDE parcel layer.
• When data entry is completed, the books are turned into support staff for processing the weed abatement notices for mailing.
Post Inspection Workflow

- Post inspection workflow training for fire support staff included a streamlined course in GIS, working with the mxd, extracting the data, converting to Excel, and importing into the print batch program.
- Developed workflow during the training to best fit using old and new practices.
- Created First Survey shapefile to be used in Second Survey for reference.
- Met all deadlines of the program, notices sent out.
Suggestions from staff...

- Liked using technology more
- Would like to see parcels change as edited
- Would like to have an auto date
- Would like to be able to enter same information once for multiple selections the same time
- Would like to be able to use the Toughbooks in the field
- Make some fields mandatory
- Turn off unnecessary fields
- Thought we would be ready to incorporate some of these in 2012.
Let’s take a look...
First Survey
2599 Parcels
3774.6 Acres
Second Survey:
597 Parcels
1656.5 Acres
Still on version 9.3.1
Simplified editing table for staff
Using simple one page letter
Looking at changing other inspections to the “GIS” format.
First Survey:
2912 Parcels
2461.6 Acres

Second Survey:
1164 Parcels
958.4 Acres
2013

- Upgrading to 10.1
- May be using tablets or smart phones
- Simplified editing table for staff
- Auto-fill pop-up windows
- Using simple one page letter or card
- Still looking at changing other fire inspections to the “GIS” format.
Thank you….

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