



# Development of a Park Inventory/Maintenance Application

City of Battle Creek  
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## Park Asset Management - PAM

The Parks and Recreation Department, in conjunction with Public Works (Field Services) and GIS, is transitioning from a manual maintenance/inventory data collection to an automated application. (PAM - Park Asset Management) Time constraints and a resource deficit significantly impede park management. This paper explores a mobile and geospatial solution for efficiently managing parks. ArcPad 6.0 and Compaq's iPAQ have enabled park management to go mobile and digital, thus diminishing the time and resources required.



Battle Creek, Michigan

PAM  
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## PAM Going Mobile

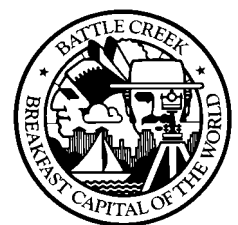
“ArcPad”, “mobile GIS”, and “geospatial analysis” are words that have been applied to several different areas of local government. As the trend continues, we will see these words applied to more and more departments.

Let's take a look at how the three terms have been applied to Parks and Recreation, in order to create PAM.

- ArcPad (medium)
- Mobile GIS (tool)
- Geospatial Analysis (solution)



“PAM”



## Background

### What is PAM?

PAM is a system developed by the City of Battle Creek to efficiently manage park maintenance. PAM is used to automate reporting. The system is a consistently dynamic way of maintaining information about each park element. The following steps are taken when using PAM.

1. Using ArcPad Application Builder, forms are created for each category (layer) of elements that are to be mapped. (Pathways, equipment, structures, etc.)
2. Using GPS in conjunction with ArcPad, the elements of the park are mapped and the attributes are recorded through the appropriate form.
3. Through the previous step, a database is created, therefore allowing cost analysis and maintenance analysis.
4. Data cleanup. As with any database, there is always a matter of sprucing it up. (Especially if the intent is for the data to become public knowledge.)

*“The system is a consistently dynamic way of maintaining information about each park element..”*

### Why PAM Started

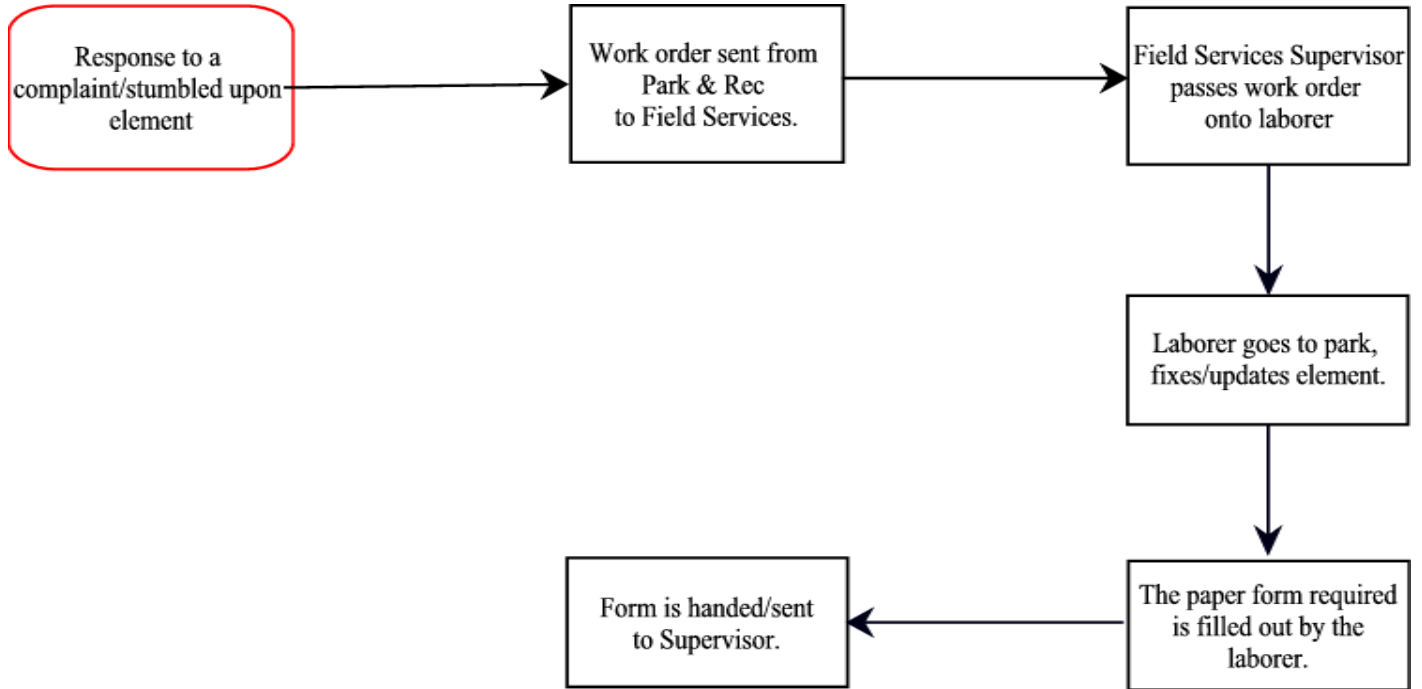
- PAM started due to a lack of a consistent, time efficient, systematic method of maintaining parks.
- Prior to and during the transition stages of PAM, parks were maintained through a static paper/pen method.
- Elements were fixed when they happened to be stumbled upon and/or in response to a complaint.

*“Equipment Form” created in ArcPad Application Builder*

### Attributes recorded for park elements:

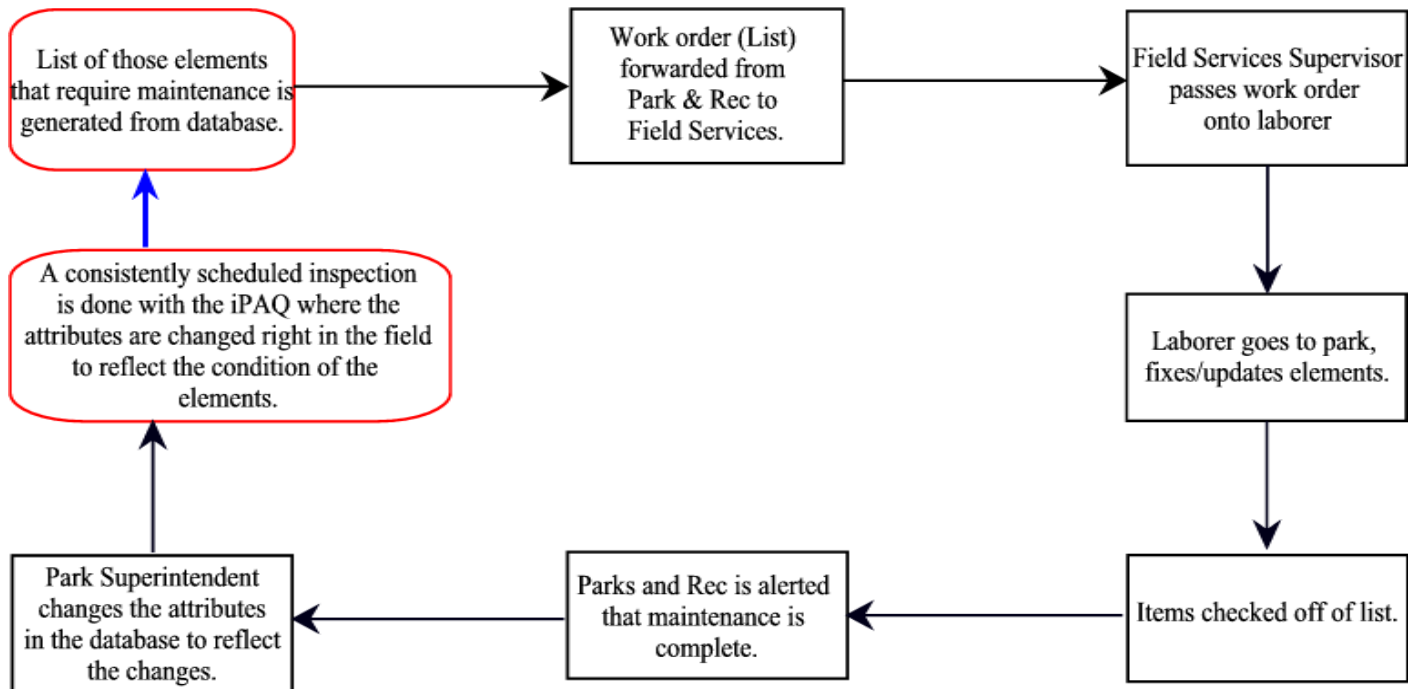
- Name
- Condition
- Age
- Notes
- Park Name
- Material
- Temp or Perm
- Meet Code
- Model Number
- Surface Under
- Type
- Size
- Date Inspected
- Inspector's Initials
- Need Maintenance
- Maintenance Date
- Maintenance Notes
- Projected Cost
- Actual Cost

### Past Method



The "Past Method" flowchart reflects the procedure done for only one element. PAM's flowchart reflects the systematic procedure done for several/all the elements at one time.

### PAM System



## PAM Implementation

To begin implementation, the following is required:

- Equipment (GPS, Mobile Device, Computer)
- Manpower
- Time (Mostly on the front end of the implementation. The time invested in the beginning saves significant time in the future.)

Once the initial stages have been done (steps 1-4) PAM takes on a slightly more subjective role. The variety of uses is endless. So we'll just touch on a few Battle Creek has utilized. The succeeding uses can really be viewed as an expansion on step number three.

### Cost Analysis

- Actual Cost
- Projected Cost

Two attributes that are recorded for each element are, "Actual Cost" and "Projected Cost." The two fields can be combined with other elements of the same nature, such as querying all the swings to determine the projected cost; or they may be queried spatially, such as all the equipment within a particular section of a park. Potential here is virtually endless. The City of Battle Creek has found the Cost Analysis particularly useful and rather powerful due to the need of approval before taking on projects with a capital cost. Through PAM, the cost data can be queried right at one's desk, without ever having to step foot in the parks.

### Maintenance Analysis

- Maintenance Done
- Maintenance Needed
- Maintenance Date
- Last Inspected (Two attributes - One with initials and one with a date)

Most, if not all, local governments answer to the residents. The maintenance attributes set up for each element (noted above) in a sense create a maintenance log. As with "Projected" and "Actual Cost" one is able to query the maintenance data in a matter of a few minutes and return a solid answer as to a question of maintenance. This provides a another solution to the big



*A bench in Monument Park being inventoried.*

*"The time invested in the beginning saves significant time in the future."*



*Field Services fixing a water fountain.*

## Maintenance Analysis Continued...

and ever popular question of whether a park element is considered safe.

Maintenance analysis also allows for Parks and Recreation to determine which areas/elements have priority through a rating system. A critical point in determining criteria for a fair, unbiased rating system is making sure the criteria is objective. For a simple example of objective criteria, elements can logically be rated on safety by determining if they meet safety code standards. Subjective/political criteria, though very difficult to keep out at times, will keep PAM from being a model that is transferable. This type of criteria also has the potential for some parks to never be maintained.

## Comparison of Benefits

### PAM

- Efficient
- Long term - requires little resources (Monetary & Human)
- Consistent
- Dynamic
- Returns accurate/immediate results

### Paper/Pen

- For those not so into technology, it does not have the initial intimidation.
- Leaves (usually) a pretty good paper trail.
- Good short-term solution.
- Provides immediate customer satisfaction.

\*It should be noted that PAM is an extremely effective solution standing alone, but can still be effective in conjunction with the paper/pen method.

## Wouldn't it be nice if...

- Every park element is equipped with a chip that automatically updates the system every time an attribute changes. (Yes, this is far off in the future, but probably not too far off!)
- PAM is linked to an internet website where residents are able to view all the attributes (that they need to) for each park. The site would also allow for residents to reserve shelters and other such elements, through Park and Recreation software. (This *is* in the very near future of PAM at the City of Battle Creek)



*Parks and Recreation employee querying the PAM system for cost data.*

*“A critical point in determining criteria for a fair, unbiased rating system is making sure the criteria is objective.”*



*Parks and Recreation's website that could potentially be linked to PAM.*



Piper Park—The City of Battle Creek

*The City of Battle Creek serves a population of 54,000. A population which is extremely diverse. It is the second largest landmass city in Michigan.*

*The Parks and Recreation Department services 29 parks. (1491 Acres) In the last 10 years, nearly 7 million dollars has been invested in the City of Battle Creek's parks.*

*The City of Battle Creek, has a wide range of opportunities within the parks; 20 miles of paved pathways, an award winning golf course, sandy swimming beach, and an historic scenic tree collection in the arboretum.*



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