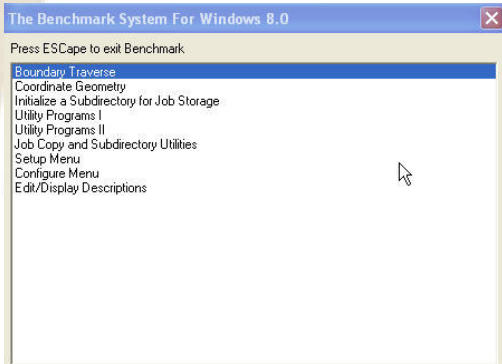


## Benchmark for Windows

is a collection of integrated calculation routines that solve most problems encountered in land surveying and subdivision design.

Benchmark has one of the most flexible command and data entry formats available.

**Windows  
Compatible**



Benchmark interfaces smoothly with other software packages including:

**AutoCAD®**  
**Autodesk® Land Desktop**  
**Autodesk Civil Design**  
**Autodesk Survey**  
**Autodesk Field Survey**  
**Carlson® Survey 2004**  
**and**  
**Carlson Survey Desktop**

## Benchmark Interface

Benchmark for Windows consists of several programs divided into many flexible routines, some of which are described below. Routines may be selected by either numeric command or via our unique popup menus, providing easy access to Benchmark functions. Users may even customize the screen menus to suit their own operating preferences. Benchmark's unique customization menu allows the user to set up the program to accept data and print results in accord with your own procedures. Benchmark will even allow the user to create "batch" files with a word processor.

### Boundary Traverse Editing Features

- |                               |                          |
|-------------------------------|--------------------------|
| - Closed Traverses            | - Manual Angle Balance   |
| - Closed Connecting Traverses | - Balance By:            |
| - Random Traverses            | Compass Rule             |
| - Direction Options:          | Crandall's Rule          |
| Bearings                      | - Field Data List        |
| Azimuths                      | - Angular Error Search   |
| Deflection Angles             | - Linear Error Search    |
| Angles from Backsight         | - Side Entry Correction  |
| - Multiple Side Shots         | - Delete Entered Side    |
| - Observation Averaging       | - Insert Omitted Side    |
| - Radius Curves               | - Elevation Reduction    |
| - Tangent Curves              | - Load Stored Field Data |
| - Hold Angle Constant         | - Temperature Correction |
| - Hold Side Constant          | - Meters/Feet Conversion |
| - Automatic Angle Balance     | - Slope Angle Conversion |

## Boundary Traverse Program

This program will balance automatically, if desired, a closed loop traverse or a closed connecting traverse to the known starting and ending coordinates.

Multiple observations may be entered and averaged. Elevation data may be entered at the same time as traverse data.

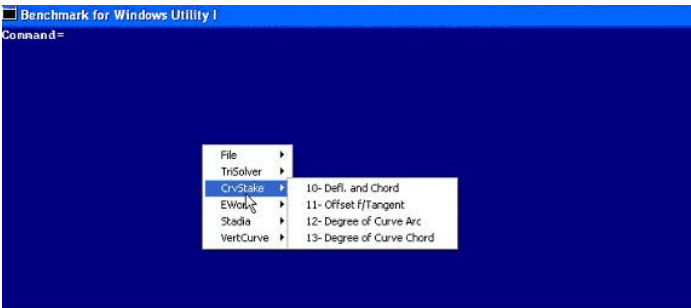
Distances may be entered in meters or feet and may be adjusted by slope angles as well as temperature. Legs may be entered optionally as side shots, or held constant (so that no adjustment is made during balance). Curve selections include radius or tangent legs. Once entry is completed, the angular error and complete closure data is output by the system.

Many options are available to the user including automatic, manual, or no angle balance; compass rule, Crandall's rule, or no adjustment; list field data, angular and linear error trials. Any of these options may be mixed as desired, and several trial adjustments may be analyzed before the final output is selected and the computed final coordinate points output and stored for the traverse.

An outstanding additional feature allows random numbering of coordinate points to better accommodate field book notes. Traverse legs may be inserted or deleted if input errors are discovered after the original data entry is completed. Also, input data may be stored on the job disks for later use.

## Utility Programs

Special routines for curve staking, elevation reduction, and vertical curves.



## Design Routines

Street intersections may be of two or three straight streets, two curved streets, or straight and curved streets. A minimal amount of input information is required to produce complete intersection data. Similarly, cul-de-sacs may be of straight or curved entry, with or without offsets, and on corners or sides of streets.

A set of lot sizing routines can be used to design lots to meet a minimum square footage and a minimum width at set back. Options for radial lots, parallel lots, area cut offs and sliding bearings are included.

Parcel #2				
M18-51-37.3E	109.086	77	4387.0834	5249.9008
M18-51-37.3E	50.000	76	4490.3129	5285.1644
S41-47-53.7E	50.000	34	4537.6283	5301.3276
		78	4500.3535	5334.6531
Delta	= -60-39-31.2			
Radius Length	= 50.000			
Arc Length	= 52.935			
Tangent Length	= S71-08-22.7E		N48-12-06.1E	29.252
Chord Length	= N78-31-51.7E		50.497	
S41-47-53.9E	149.359	79	4389.0071	5434.2024
S09-24-07.1W	184.312	77	4387.0834	5249.9008
Final Area	= 12500.00 Square Feet			
	0.286 Acres			
Group #	=			

**Benchmark for Windows** retains its familiar Command and text based "look & feel".

## Extensive Coordinate Geometry

This program offers the user the most flexible coordinate geometry package available. The program accesses the randomly stored coordinates that were either entered by the operator or previously computed and stored.

You may traverse by bearing, azimuth or turned angle. Distances can be adjusted for slope angle, temperature, and/or converted from meters to feet. Side shots and 90 degree offsets may be calculated; you can inverse or traverse through a curve, solve for all four intersection types and use the radial stakeout routine to print angle and distance from a set-up point to any other point or group of points.

Also included are a full set of elevation reduction routines. There is a comprehensive set of routines to clear, move and print points. Also included are a curve solving utility and a triangle solver. Area is always calculated during any traverse/inverse activity.

## Coordinate Transformation

Benchmark Survey System will perform a transformation or rotation from one coordinate system to another. Newly computed coordinates may replace the previous ones, or be stored in a new location within the job. The angle of rotation may be entered or defined by entering two coordinates in each system. Reduction to sea level and scaling are also included. Individual points or groups of points may be specified.

## Compatible with:

Windows 98/ME/2000/XP/NT



Visit us at [www.astsurvey.com](http://www.astsurvey.com)  
or email us at [info@astsurvey.com](mailto:info@astsurvey.com).

Copyright © 2003 - 2006, AST Survey