

# MAPPING PLANES IN ALBERTA

## Land Surveys Unit, Geodetic Control

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### Introduction

This fact sheet discusses the 3TM and UTM mapping planes and their representation on Alberta Survey Control Marker (ASCM) ID cards and for plans of survey.

### 3TM and UTM Mapping Planes

There are two mapping planes used for ASCMs: 3-degree Transverse Mercator (3TM) and Universal Transverse Mercator (UTM). The 3TM mapping plane is typically used for all municipalities that previously comprised the 73 Municipal Integrated Surveying and Mapping (MISAM) areas, referred to as urban cadastral mapping areas. Conversely, the UTM mapping plane is typically used for all other municipalities and non-urban areas, referred to as rural cadastral mapping areas.

### 3TM/UTM and ASCM ID cards

In general, ASCMs are referred to as being either URBAN or RURAL depending on the location of the ASCM. URBAN ASCMs are all those markers that lie within one of the 73 former MISAM areas. Conversely, RURAL ASCMs are all other markers that lie outside of the former MISAM areas. For ASCM ID cards, users can obtain coordinate data referenced to either the 3TM or UTM mapping plane. Where a user is required to be consistent with the Provincial mapping system, 3TM coordinate data should be used for URBAN ASCMs and UTM coordinate data should be used for RURAL ASCMs.

### Urban and Rural ASCMs ID Cards

Depending on whether a user requests an URBAN or RURAL ASCM ID card, the information given on the ID card(s) changes. These differences are reflected in the Mapsheet Name information, Mapsheet Number information, and the *ADJACENT MARKER (calculated)* data.

### Mapsheet Name

The Mapsheet Name identifies the survey control index map(s) that includes the marker. For urban index map(s), the mapsheet names includes the name of the surrounding URBAN (former MISAM) municipality(s). Given the size of the Cities of Edmonton and Calgary, each has a series of index maps differentiated by alphabetical identifiers. For rural index maps, the mapsheet name is consistent with the Canadian National Topographic System (NTS) 1:250,000 map name.

### Mapsheet Number

The Mapsheet Number identifies the number of the survey control index map that includes the marker. For urban index maps, the mapsheet number is the 1:5000 3TM map number, based on the 3TM northing and easting of the mapsheet's southeast corner. For rural index maps, the mapsheet number is a five-digit number based on both the latitude and longitude of the southeast corner and the mapsheet's three-character NTS 1:250,000 map number.

### Adjacent Marker Data

When an URBAN marker is selected, the *ADJACENT MARKER (calculated)* information shown on the ID card is displayed with horizontal distances, grid-to-ground scale factors, and grid bearings. When a RURAL ASCM is selected, the *ADJACENT MARKER* information is displayed with slope distances, grid-to-slope scale factors, and astronomic azimuths.

### Additional ASCM ID Card Details

For further details on ASCM ID cards and the information displayed on them, users should refer to the Alberta Survey Control Products Manual that is available at <https://open.alberta.ca/publications/0773212981>.

## 3TM/UTM Zone Widths, Central Meridians, and Scale Factors in Use in Alberta

The 3TM mapping plane has a zone width of 3-degrees with central meridians in Alberta of 111°, 114°, 117°, and 120°. The scale factor at the central meridian is 0.9999 and there is no false easting or false northing. The UTM mapping plane has a zone width of 6-degrees with central meridians in Alberta of 111° (Zone 12) and 117° (Zone 11). The scale factor at the central meridian is 0.9996. There is a false easting of 500,000 m and no false northing. Note that for RURAL ASCMs, the 3TM zone widths vary from two to four degrees longitude in Alberta (only) depending on the central meridian. The reason for this is that it allows the ASCMs to be referenced to the same central meridian for all markers falling within a single 1:250,000 ASCM Index Map. The zone width for zones centered on the central meridians of 111° and 117° is two degrees wide and four degrees wide for zones centered on 114° and 120°. To avoid any confusion regarding zone widths for RURAL ASCMs referenced to the 3TM mapping plane, users are encouraged to use the UTM mapping plane in rural areas.

## Urban Cadastral Map Areas

Airdrie, Barrhead, Beaumont, Black Diamond, Bonnyville, Bow Island, Brooks, [Calgary](#), Camrose, Canmore, Cardston, Carstairs, Claresholm, Coaldale, Cochrane, Cold Lake / [Grand Centre](#), Crowsnest Pass, Drayton Valley, Drumheller / [ID#7](#), [Edmonton](#), Edson, [Fairview](#), Fort Macleod, Fort McMurray, Fort Saskatchewan, Grande Cache, Grande Prairie, Gibbons, Grimshaw, Hanna, High Level, High Prairie, High River, Hinton, Innisfail, Lacombe, Lac La Biche, Leduc, Lethbridge, Lloydminster, Magrath, Medicine Hat, Morinville, Okotoks, Olds, Oyen, Peace River, Picture Butte, Pincher Creek, Ponoka, Raymond, Redcliff, Red Deer, Rocky Mountain House, Sherwood Park (Strathcona County), Slave Lake, Spruce Grove, St. Albert, St. Paul, Stettler, Stony Plain, Strathmore, Swan Hills, Taber, Three Hills, Turner Valley,

Vegreville, Vermilion, Wainwright, Westlock, Wetaskiwin, and Whitecourt

### NOTES:

- The Cities of [Edmonton](#) and [Calgary](#) are responsible for their own mapping and may have different standards and/or guidelines for use of mapping planes.
- The municipalities of [Grande Centre](#) and [Cold Lake](#) merged in 1996 to form the City of Cold Lake. However, the ASCM ID cards still reflect the map names and map numbers for both municipalities. Similarly, the municipality of Drumheller and [ID#7](#) merged in 1998 to form the Town of Drumheller. Again, the ASCM ID card data still reflects the previous map names and map numbers.
- The municipality of Fairview was scheduled to be a part of the MISAM program, but was subsequently mapped under the Parcel Mapping program. Even though Fairview is a RURAL municipality, based on the cadastral mapping, the ASCM ID cards for markers within Fairview are treated as being URBAN. Consequently, this municipality should be treated as being URBAN for mapping purposes.

## Need more information?

This fact sheet is one of a series published by Lands Division, Land Surveys Unit, Geodetic Control. For more information, please visit our web site or contact us at (780) 422-1291.