



DEPARTMENT OF
PUBLIC WORKS

CITY OF SACRAMENTO
CALIFORNIA

1231 I STREET, ROOM 200
SACRAMENTO, CA 95814

DEVELOPMENT SERVICES

PH 916-264-7995
FAX 916-264-5786

February 20, 2004

TO: The Sacramento Development and Improvement Design Community

**Subject: Update of the City of Sacramento Design and Procedures Manual –
Adding Section 17 to include “Digital Map Submission Standards”**

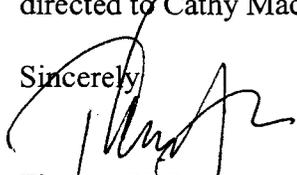
The City of Sacramento’s Design and Procedures Manual (DPM) is a critical policy document that dictates design requirements and procedures from many public improvements. The DPM is hereby amended to include the attached “Digital Map Submission Standards”. These standards are being added as Section 17 to the City’s “Design and Procedures Manual”.

These standards reflect a consensus among city staff that are responsible for supporting the development process in our community. The content of the digital map submission standards have been created in order to expedite the process for maintenance and distribution of data that results from the development process. The digital map submissions are not intended to replace the hardcopy maps. The hardcopy maps will continue to be the official documents. Components of these standards include technical specifications and reference to the City’s Global Positioning Systems Static Survey for use in map referencing. This inclusion will acknowledge the existence of a City horizontal control system. These standards provide important land-based information to the key departments and agencies in the public and private sector whose business processes revolve around timely information.

Inclusion of the Digital Map Submission Standards in the Design and Procedure Manual allows the City Of Sacramento to require digital map submissions at predetermined places in the development process. These digital map standards will evolve over time to help facilitate the sharing of information between departments and agencies, and as technology changes occur. All changes will undergo a review process and be documented and added to the Design and Procedure Manual.

The attached Digital Map Submission Standards are available at the public counter on the second floor of 1231 I Street building. Questions regarding the Digital Map Submission Standards should be directed to Cathy MacLain Shires, Public Works at (916) 808-1952.

Sincerely,


Thomas V. Lee
Deputy City Manager


Betty Masuoka
Assistant City Manager

Attachment

C: Planning Director
Development Services



DEPARTMENT OF
PUBLIC WORKS

CITY OF SACRAMENTO
CALIFORNIA

5730 24th STREET
BUILDING FOUR
SACRAMENTO, CA
95822-3699
PH 916-433-6362
FAX 916-399-0263

SURVEY SECTION

January 2, 2003

MEMORANDUM

TO: Mike Kashiwagi, Director of Public Works

FROM: Roy Heavenston, Supervising Surveyor

SUBJECT: City of Sacramento's GPS Control Grid

As of December 19th, 2002, the City of Sacramento has a filed Record of Survey of the City's GPS Control Grid. It is recorded in Book 63 of Surveys, Page 29. This was the first GPS Record of Survey for Sacramento County, thus setting a precedent for others to follow. This was the culmination of two years of hard work and perseverance of Survey Section's GPS Team led by Faith Recio, Survey Party Chief and GPS Coordinator. Faith consulted with various State and Federal agencies to determine proper procedures to insure the highest level of GPS accuracy.

As per City Code Section 16.44.040*, we now have in place an official 'system of coordinates' which all field surveys may be tied into. Bob Robinson in Development Services is ready to begin implementation as soon as he is given authorization.

***16.44.040 Grid monuments.**

Wherever the director of public works has established a system of coordinates which is within a reasonable distance of the subdivision boundary, as determined by the director of public works, the field survey shall be tied into such system. (Prior code § 40.11.1104)

SECTION 17

DIGITAL MAP SUBMISSION STANDARDS

TABLE OF CONTENTS

17.1 Introduction.....17-1
17.2 Purpose.....17-1
17.3 Format Requirements.....17-1
17.4 Submission Requirement.....17-1
17.5 Data layer requirement.....17-2
17.6 Digital File Submission Procedure.....17-4
17.7 File Naming Convention.....17-4
17.8 Media Requirements.....17-4
17.9 Data Integrity Requirements.....17-5
17.10 Horizontal Control.....17-5
17.11 Review of Digital Data.....17-6

SECTION 17 DIGITAL MAP SUBMISSION STANDARDS

17.1 INTRODUCTION

The City of Sacramento requires improvement plans and final subdivision maps to be submitted in digital format. This requirement is in addition to the existing hardcopy submission requirements. The intent of this document is to enable the required hardcopy and digital submission to be produced from the same digital data without significant modification. Some fundamentals of structure are required such as layer designation and line type. However, there are no database linkage requirements.

The purpose of this prerequisite is to allow the City of Sacramento’s geographic information system (GIS) to be as current as possible. A GIS allows multiple users the ability to share computerized or digitized base maps, and link a variety of information to geographic features within the maps. For example, property value information can be linked to parcels.

In order for the GIS to be fully utilized by the Development Services Department and other agencies, it must be as current as possible. Many GIS users have requested that preliminary layouts of subdivisions be available in digital format, fully realizing that the plans are subject to change prior to final recording of the map. The submitted digital

data may be used for computational purposes in reviewing the map, maintaining digital land bases, or used in a document retrieval system. A disclaimer of liability will be placed on all digital files and file copies. **The recorded hardcopy will continue to be the official document.**

17.2 PURPOSE

The purpose of this document is to outline the minimum content and format required of improvement plans and final subdivision maps, submitted in digital format, before being considered “officially filed.”

17.3 FORMAT REQUIREMENTS

The format for digital submission of improvement plans and final subdivision maps is one of the following: *.DXF, or ESRI geodatabase format.

17.4 SUBMISSION REQUIREMENT

1. In cases where a linear element between two points applies to more than one feature (i.e. a boundary line and lot line may be coincidental), this data will be submitted as one graphical element. If such is the case, the following hierarchy must be utilized to determine the appropriate layer for the graphics data.

- 1) Boundary
- 2) Right-of-way
- 3) Lot line

By utilizing this approach, there is no duplication of data.

2. No externally referenced data is permitted.
3. No lines are to be constructed with deliberate gaps.
4. Maps will be oriented due north.

Following requirements are specific to CADD format only.

1. Annotation layers will be used to provide attribute data on each object where text is requested. Text insertion points are to be middle justified. Where text relates to an area the text insertion point must lie within enclosed area boundary.
2. Blocks will not be permitted as a valid data element for point feature symbology.
3. Units will be decimal units.
4. Scale will be 1:1.
5. CAD files are to be two-dimensional only; no Z value coordinates are to be used.

17.5 DATALAYER REQUIREMENT

17.5.1 Layer requirement for improvement plans:

The following table outlines what will be considered valid layer names and data objects for improvement plans:

LAYER	DATA OR FEATURE	DATA ELEMENT
MONTEXT	Monument description	Annotation
MONUMENT	Monument icon	Point
SIDEWALK	Outline of sidewalks	Continuous Line
MEDIAN	Outline of medians	Continuous Line
SHRUB	Outline of shrub areas	Continuous Line
TURF	Outline of turf or grass areas	Continuous Line
DECOMGRANITE	Outline of decomposed granite	Continuous Line
HARDSURFACE	Outline of hard surface areas not composed of decomposed granite	Continuous Line
LOTLINE	Lot lines	Continuous Line
LOTTEXT	Lot numbers	Annotation
NEWESMENT	New easements	Continuous Line
NEWESTXT	New easement descriptions	Annotation
PROPCONT	Proposed contours	Continuous Line
ROW	Street right-of-way	Continuous Line
SETBACK	Building setback line	Continuous Line
SITENUM	Address numbers	Annotation
STRNAME	Street name text	Annotation
DETBASIN	Proposed detention basin	Continuous Line
STPIPE	Storm pipes and culverts	Continuous Line
STMH	Manholes and junction boxes	Point
STPIPTXT	Culvert and pipe text	Annotation
STMHTXT	Manhole and junction box text	Annotation
SAPIPE	Sanitary sewer pipe	Continuous Line
SAMH	Sanitary sewer manhole	Point
SAPIPETXT	Sanitary sewer pipe text	Annotation
SAMHTXT	Sanitary sewer manhole text	Annotation

SALIFT	Sanitary sewer lift station	Point
SALIFTTXT	Sanitary sewer lift station text	Annotation
WALINE	Water line	Continuous Line
WALINETXT	Water line text	Annotation
WAVAL	Water valve	Point
WAVALTXT	Water valve text	Annotation
HYDRANT	Fire hydrants	Point
BLOFF	Blow-offs	Point
BLOFFTXT	Blow-offs text	Annotation

Note: All other data not required by the GIS but useful to the enterprise can be transmitted on other logical data layers.

17.5.2 Layer requirement for final maps:

The following table outlines what will be considered valid layer names and data objects for final maps:

LAYER	DATA OR FEATURE	DATA ELEMENT
SUBBOUND	Subdivision Boundary Lines	Continuous Line
BNDTXT	Boundary text, survey calls, etc.	Annotation
EXESMNT	Existing easements	Continuous Line
LOTLINE	Lot lines	Continuous Line
LOTNUM	Lot numbers	Annotation
MONTEXT	Monument description	Annotation
MONUMENT	Monument icon	Point
NEWESMENT	New easements	Continuous Line
NEWESTXT	New easement descriptions	Annotation
RW	Street right-of-way	Continuous Line
STARTPT	Starting point	Point
STRNAME	Street name text	Annotation
CL	Street centerlines	Continuous Line
METEBNDS	Traverse information	Annotation

Note: All other data not required by the GIS but useful to the enterprise can be transmitted on other logical data layers.

17.6 DIGITAL FILE SUBMISSION PROCEDURE

17.6.1 The digital file for improvement plans and final subdivision maps must be submitted to:

Development Services Department, City of Sacramento
Attn: Jerry Lovato
NEW CITY HALL
915 I Street, 3rd Floor
Sacramento, CA 94814
Email: PB_maps@cityofsacramento.org

17.7 FILE NAMING CONVENTION

Filenames for final maps shall be appropriately assigned based on the alphanumeric planning tentative map application number plus the order of approval number (example P03032_1.dxf). Filenames for improvement plans shall have abbreviation "Imp" in front of the final map filenames (example ImpP03032_1.dxf). If plans such as bridge, traffic signal or landscaping are to be included they may be sent separate from the "Imp" plans and shall have the abbreviations "Bdg," "Sig" and "Lnd" respectively. Filename extension shall be included.

17.8 MEDIA REQUIREMENTS

17.8.1 The following methods of data transfer are considered acceptable for digital submission of subdivision maps:

1. CD Rom
2. Email

17.8.2 All digital data will require an **accompanying text (metadata) file**. This file will be in ACSII file (.txt extension) format using the same naming convention as the subdivision file being submitted. This file will contain the following information.

Subdivision Name: Willow Creek Village 15 Phase 2
File Name: PXXXXX_X.dxf
Date: 01/01/2005
Contact name: Mr. Jones
Contact phone: (XXX) XXX-XXXX
Contact e-mail: jones@SJEng.com
Supplemental Information: Include master parcel number and/or adjacent parcel numbers (APN).

NOTE: No additional information will exist in the submission or on the media aside from data being specifically transmitted to the Development Services Department. Submitted CD-ROMs will not be returned.

17.9 DATA INTEGRITY REQUIREMENTS

The following requirements pertain to the mathematical integrity of the geometric data.

17.9.1 The maximum error allowable between theoretically coincident points will be .03 feet (9mm).

17.9.2 The maximum error allowable between points on a line and the line will be .02 feet (6mm).

17.9.3 The difference between distances calculated by the inverse between the coordinates of points in the digital submission and the annotated distance shall not exceed .01 feet (3mm).

17.9.4 The difference in seconds between the rounded values of the inverse coordinates of points in the digital submission and the annotated bearings shall not exceed +/- one second.

17.9.5 Logical areas will be transmitted as a closed figure. Line end nodes will be snapped to adjoining line node to ensure this requirement.

17.9.6 Annotation submitted digitally will be identical to annotation submitted on the hardcopy maps. Draw lines will represent their annotated values.

17.9.7 When displaying coordinates, the whole number for the coordinate will be shown (i.e. no constants will be applied).

17.10 HORIZONTAL CONTROL

17.10.1 The City Of Sacramento's horizontal control system is the GPS Static Survey recorded by the County of Sacramento in Book 63 of recorded surveys, Page 29.

17.10.2 The subdivision boundary will be on the City Of Sacramento's horizontal control system. The surveyor or engineer will be required to show a minimum of two (2) ties to such control monuments in accordance with the Subdivision Regulations.

17.10.3 The map projection shall be the California State Plane Coordinate System, Zone 2, NAD 83, in US survey feet.

17.11 REVIEW OF DIGITAL DATA

17.11.1 All digital data will be reviewed for the following criteria:

1. Correct layering.
2. No duplicate linear or point elements.
3. Closure of the geometry of all logical areas.
4. Verification that digital and hardcopy maps are consistent
5. Correct geographical position (i.e. correct coordinate values for final submissions)

17.11.2 The submitting party will be responsible for correcting any errors and delivering the new correct digital file prior to approval by the Development Services Department.