A Guideline to Surviving the Year 2000 Issue
A Guideline to Surviving the Year 2000 Issue

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FOREWORD

The Year 2000 issue, or Millennium Bug, will have a significant impact on every Council in the State. The impact will either be in the form of allocating valuable resources to identify and rectify potential problems, or alternatively, the impact could be far more costly for those Councils who find themselves unprepared when the next New Year arrives.

The potential for widespread litigation is real. The Council’s thoroughness in addressing the issues and documenting actions taken is the best weapon in the unfortunate event of becoming involved in a dispute.

Councils should be warned that their insurance cover will not protect against incidents that occur as a result of being non compliant in this area.

In addition to Councils protecting themselves against possible litigation, Councils owe it to their communities to ensure that the valuable services they rely on will continue to be provided uninterrupted and with the highest regard for safety.

As many Councils are discovering, the areas in which the Millennium Bug can cause problems are wide ranging. The problem can occur in any piece of equipment that has an embedded chip that is time sensitive. For example, problems can occur in obvious areas such as computer operating systems and software. However, these chips can also be found in less obvious places such as in lifts, air-conditioning systems, security systems, telephone PABX, fax machines, electronically controlled machinery such as floodwater and effluent pumps, sprinkler systems and earth moving machinery to list just a few!

The LGA State Executive acknowledged that whilst Year 2000 compliance is the responsibility of each Council, the LGA needed to raise the level of awareness of the issue within local government and endorsed the development of a publicity campaign. Funding has been provided by the Local Government Research and Development Fund. David Hope of Skilmar Systems Pty. Ltd. has written the manual with guidance from the LGA Year 2000 Working Group composed of industry representatives.
These guidelines have been commissioned by the LGA to assist Councils establish a risk management strategy and raise the level of awareness. I am reassured that many Councils have commenced extensive risk analysis programs. However for all Councils and particularly those who are just starting I am confident each Council will find this a practicable and worthwhile guide to surviving the Year 2000 issue.

The commencement of 1999 has signalled how little time there is to address this problem and I urge Council staff and elected members to be diligent.

Mayor Rosemary Craddock
President
Local Government Association of SA
Important Notice

The purpose of this guideline is to alert people to some issues related to Year 2000 readiness and provide a basic framework which might be used to explore and manage some of those issues. No representation or warranty is given that simply following the procedures in this guideline will result in a Year 2000 compliant organisation. Councils are encouraged to seek expert advice as appropriate.

The Local Government Association, its officers, employees and agents give no warranty as to the accuracy, completeness or fitness for purpose of any of the information or procedures in this guideline. Use of the information and procedures in this guideline are at the risk of the user and liability for such use is disclaimed (to the extent permitted by law).

A Cautionary Note

This guideline is not intended to be a definitive and detailed manual, covering every conceivable element of the Year 2000 issue and its resolution. Rather, it is intended to provide broad guidance to Councils in setting up a process that will be effective in minimising the potential risk of date dependent functions.

Year 2000 Disclosure Statement

This statement is a Year 2000 disclosure statement for the purposes of the Year 2000 Information Disclosure Act 1999. The Local Government Association may be protected by that Act from liability for this statement in certain circumstances.
INTRODUCTION

Objectives of this Guideline

This guideline has been developed with four primary objectives in mind:

1. To increase awareness amongst Councils of the Year 2000 (Y2K) issue.

2. To assist in the identification of risks that a Council might face in relation to the Year 2000.

3. To assist Councils to develop and implement a plan of action to deal with the issues of the Year 2000 as they may affect the council and its role in the community as a regulator, service provider and purchaser of goods and services from external organisations.

4. To summarise the key steps that need to be undertaken and provide guidance on how to become Year 2000 compliant.

It recognises that in addressing the Year 2000 issue each Council will need to identify its role and relationship with its community in regard to the Year 2000 issue. Key issues for consideration will be identifying which activities:

- Council undertakes itself e.g. direct service provision;
- Council facilitates through community groups or external businesses
- Council purchases from a third party (e.g. goods and services).

and the impact the Year 2000 issue will have on the future delivery of services to the community.

Council will need to be confident that where it is relying upon or working collaboratively with another agency or business, that agency or business has addressed the Year 2000 issue.

The guideline suggests that there are 6 key steps that Councils need to undertake as they identify, plan for, implement and monitor their approach to the Year 2000.
Step 1: Establishment of the Project.

Step 2: Identification of all Date Dependent Devices, Applications, Services and Community or Business Relationships.

Step 3: Identification of the Risk of Business Disruption

Step 4: Identification of Solutions

Step 5: Implementation and Testing of Solutions

Step 6: Auditing the Process

Each Step in the guideline is overviewed and example forms and checklists are included.

Clearly the guideline does not provide all the answers. What is does provide, however, is a structured approached to address the matter in Council.

The guideline emphasises the involvement of Elected Members and Staff. It is important to recognise that Councils will require additional financial resources and in most instances access to technical expertise to assist in confirming and applying solutions.

In addition the LGA’s Mutual Liability Scheme is a useful resource in assessing the risks associated to various activities of Councils. It will also be beneficial to gain legal advice on some matters, for example, contracts that Council has entered into with third parties.

As discussed later in this guideline, January 1, 2000 is not the beginning of the challenge for managing the Year 2000 issue. Councils need to be aware of the potential of dates such as June 30 1999, July 1 1999 and September 9 1999 to cause processing difficulties.

What is the Year 2000 Issue?

In its infancy, the computing industry had a strong bias to minimising the amount of data that was stored in computers, because both computing time and storage space (memory) were expensive. As a result of this bias towards minimising data storage it became a convention to store the Year part of any date in two digit form i.e. 1951 was stored as 51.
Because the first two digits of the Year – 19 – have been implied it is likely that any software program that still uses two digits to store the Year part of any date will treat the digits as 00 to imply the Year 1900, rather than the Year 2000. Clearly where the date is an integral part of a calculation, a reversion to the Year 1900 will have serious consequences for calculations based on dates.

It is also important to understand that the issue does not revolve solely around January 1, 2000. There is potential for the end of the current financial Year and the start of the 1999/2000 financial Year to affect processing as well as September 9, 1999 - ‘9999’ was a popular number used by programmers to indicate the end of a file.

Even software that has been designed to look for a four digit year may suffer date problems if users of the software do not enter the date correctly. For example, entering the date as “text” rather than as a date will cause the program to fail if it is dependent on finding a valid date.

It is not sufficient to say that the Year 2000 issue is a computing matter for the IT people to deal with. The reality is that the Year 2000 issue is a business issue. It is an issue which, if left ignored or not dealt with thoroughly through the organisation, has the potential to cause disruption to a wide variety of business operations - from receipting payments to controlling sprinkler systems in the local parklands. Any system which uses hardware, software or has an application that is date dependent is at risk.

In an increasingly litigious society, the people affected by a Council’s business failure may take legal action against the Council. Even if the legal action is successfully defended there will be a loss of time, resources and money in defending the action, not to mention loss of confidence in Council’s ability to manage itself.

The above statement is not meant to be alarmist, but is intended to raise the consciousness of Councils as to the seriousness of the Year 2000 issue if left unresolved. Good management and the involvement of all staff in the organisation should limit or eliminate potential damage.

A Definition of Year 2000 Conformity

Standards Australia, in conjunction with Standards New Zealand, have published “A Definition of Year 2000 Conformity Requirements –
SAA/ SNZ MP77:1999. This publication defines Year 2000 conformity as follows:

“Year 2000 conformity shall mean that neither performance nor functionality is affected by dates prior to, during and after the Year 2000.

In particular-
(a) **Rule 1** - No value for current date will cause any interruption in operation.
(b) **Rule 2** - Date-based functionality must behave consistently for dates prior to, during and after Year 2000.
(c) **Rule 3** - In all interfaces and data storage, the century in any date must be specified either explicitly or by unambiguous algorithms or inferencing rules.
(d) **Rule 4** - Year 2000 must be recognised as a leap Year in terms of handling both the 29th of February and day 366.”


**What is a date dependent function?**

A **date dependent function** is:
- a piece of hardware, firmware (an embedded chip) or software that operates on the input of a date: or
- a business or community relationship where the Council provides, or is provided with, goods or services and there is potential for the supply of the goods and services to be disrupted through the failure of hardware, firmware or software.

This includes contractual arrangements that have the potential to be disrupted because action has not been taken to ensure continuity of supply or operation by rectifying any Year 2000 non-complying devices or applications. The contract can be for the supply of goods and services **to** the Council or for the supply of goods and services **by** the Council.

Some examples are:
- The central processing unit of a computer invariably uses the current date and time to log transactions and events; to initiate back-up procedures and as input to a wide range of processes (e.g. payroll, creditors and debtors processing).
• Many building and lift security systems operate on date systems, with the date and time being key elements in the security plan regulating access to the building or lift based on the time and the day.

• User created databases and spreadsheets may use dates to sort transactions or to initiate transactions within the application. For instance, a date or a date range might be used to select a group of transactions for comparison.

• The Council provides kitchen facilities to Meals on Wheels. It has a relationship with Meals on Wheels and if the Council facilities are not operable because of the failure of a date dependent device or application that relationship is a date dependent relationship.

• The Council operates a sewage facility, providing a sewage collection service to its community, using date dependent devices to pump the sewage. This is a date dependent service, which could potentially fail on January 1, 2000.

• The Council has a contract with a supplier to provide asphalt for the Council’s road-making operations and the supplier’s plant is date dependent.

Resource list A (at the end of the Section on Step 2) provides a list of devices or applications that have the potential to be date dependent.

Dealing with the Year 2000 Issue

In dealing with the Year 2000 issue Councils must recognise their role and relationships within the community. For example a Council is:

• A service provider and regulator in its own right:
• A facilitator and supporter of community organisations; and
• A purchaser of goods and services from external organisations.

The Council’s strategy for managing the Year 2000 issue must be cognisant of these various business relationships. There will be a number of matters that Council has direct control over or where it will become reliant upon a third party. Each function of Council’s operations will need to be viewed from the above perspectives as it plans to manage the Year 2000 issue.

It is critical to the success of Council’s plan to involve all employees in identifying, planning, implementing and monitoring the approach used to address the Year 2000 issue. Employees have a detailed knowledge of
their area of council operations and are in the best position to assist in identifying date dependent functions and the importance of these functions to the daily operations of council. They will also be able to advise on the relationships Council has with community organisations and external providers of goods and services.

Failure to involve all employees might mean that seemingly unessential parts of a council’s operations, such as an automatic watering system, do not turn on or off on January 1, 2000. As 1 January falls on a Saturday with the Monday following being a public holiday the sprinkler system could run for 72 hours. Imagine the pressure on a small town’s water storage if the sprinkler system ran for 72 hours at a time of peak demand for water as a result of extremely hot weather or a bushfire.

For external providers of goods and services Council will need to consider the following key questions:
- Have those organisations been diligent in ensuring that they will be in business on January 1 2000?
- Has the Council asked its suppliers about their readiness to continue business into the Year 2000?
- Can the Council continue to supply its clients with their goods and services?

**A Time Critical Issue.**

January 1, 2000 is less than a year away. Even more importantly, the financial year 1999/2000 is much closer. It is possible that Councils may soon be setting up budgets and reporting frameworks that use the Year 2000 explicitly to control or initiate transactions.

There are a number of other dates that need to be ‘tested’. For instance:
- September 9, 1999 - ‘9999’ was a popular number used by programmers to indicate the end of a file;
- December 31, 1999 - The first rollover date
- January 3, 2000 - The first holiday date
- February 29, 2000 - Leap Year date
- January 1, 2011 & November 11, 2011 - ‘1111’ was a popular number used by programmers to indicate the beginning of a file;

Resource list B (at the end of the Section on Step 2) has a more complete list of dates to test for.
There is no time to lose if Council has not started to address the issue!

The Year 2000 Information Disclosure Act

The Federal Government has recently passed the "Year 2000 Information Disclosure Act 1999", which came into effect on 1 March 1999. This was intended to encourage disclosure of information about Year 2000 readiness and provides some limited protection to written statements about such readiness. The Act is however subject to many exceptions, including (but not limited to) the following:

- it does not protect false or misleading statements;
- it does not protect statements made to induce people to buy goods or services; and
- it does not protect against liability for defective goods or services.

A written statement must also reference the Act, in the following way:

"This statement is a Year 2000 disclosure statement for the purposes of the Year 2000 Information Disclosure Act 1999. A person may be protected by that Act from liability for this statement in certain circumstances."

The Council should still be very careful when commenting about its readiness for Year 2000 that it does not make false or misleading statements, as this may give rise to a legal liability to people who rely on those statements.

Seek legal advice if there are any queries about liability for Year 2000 related statements that the Council is making, or the scope of protection offered by the Act.

Summary.

Local government is an integral part of every community. Many of the things that local government does are vital to the amenity and well-being of a wide range of people - from providing assistance and resources to local community groups such as ‘Meals on Wheels’ to using local businesses as suppliers of goods and services. It is difficult to say with any
certainty the precise impact of local government operations on the local economy and the local community, but it is likely to be significant, even though it varies from Council to Council.

In developing an approach to the Year 2000 issue, a Council needs to consider the following matters:

- The extent of the Council’s role in the community;
- Elected member awareness;
- The skills needed to address the issue and whether those skills are available in-house or from an outside source;
- The project plan;
- The timeframe to complete the project;
- Informing the community;
- Contingency and containment planning; and
- The opportunity for Councils to be proactive in helping local businesses by raising awareness of the Year 2000 issue and encouraging them to address their own compliance issues.

**Important Note**

This process will not be a ‘quick fix’. It will take management and elected member commitment, funding, resourcing and a great deal of effort on the part of every employee. By December 31, 1999 there will still be some work to do, although, hopefully, it will be low priority work. And on January 1, 2000 some things will fail that were not expected!
THE STRUCTURE OF THIS GUIDELINE

Overview.

This guideline suggests a six step process to deal with the Year 2000 issue. These steps, detailed in the next six sections of the guideline, are:

1. Establishment of the Project;
2. Identification of all Date Dependent Devices, Applications, Services and Community or Business Relationships;
3. Identification of the Risk of Business Disruption;
4. Identification of Solutions;
5. Implementation and Testing of Solutions; and
6. Auditing the Process.

The section dealing with Step 6 - Auditing the process - may be of assistance to Councils who are already well advanced, or have completed, their own resolution of the Year 2000 issue.

The steps do not need to be done one after the other.

In fact, if such an approach is adopted, the Council will almost certainly fail to complete the implementation of solutions for its most important functions. A possible timeline is:

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NB: The timelines for implementation and audit are shown as extending into December because Year 2000 resolution efforts are ongoing and the Project Team needs to ensure that compliance continues to be monitored and enforced. The Council should actually aim to complete the first round of implementation and audit much earlier than December, because of possible slippage and because some critical dates occur prior to January 2000. Further, given other critical dates occur beyond January 2000 and the need for contingency planning the Council will need to continue these
processes beyond that point (See Resource list B - at the end of the section on Step 2).

The six steps are dealt with through:
- Discussion of the issues related to the step;
- Examples of the issues and potential processes;
- Action/audit checklists;
- Simple forms.

The checklists and forms are also provided in electronic form on a disk so that they can be readily printed and copied. In addition, Resource list D contains useful references to allow Councils to further research specific issues they may have.
Steps in the Process “At A Glance”

Step 1: Establishment of the Project.
Scoping the project
Appointing a Project Leader
Establishing a Project Team
Involving the Council
Staff Education and Communication
Establishing an Audit Process
Linking other Council Project Teams
Review and Document

Step 2: Identification of all Date Dependent Devices, Applications, Services and Community or Business Relationships.
Involving all Staff
Identifying all Date Dependent Devices and Applications
Identifying all Suppliers of Goods and Services
Identifying all Service Relationships
Monitor, Review and Document

Step 3: Identification of the Risk of Business Disruption
Business Risk Assessment
Ranking and Classifying all Date Dependent Functions
Monitor, Review and Document

Step 4: Identification of Solutions
Prioritising Workload
Containment
Identifying Solutions
Contingency Planning
Monitor, Review Documentation and Approval

Step 5: Implementation and Testing of Solutions
Internal Solutions
Testing Solutions
Containment
Monitor, Review and Document

Step 6: Auditing the Process
Audit – a continuous process
Selecting who should do the audit
STEP 1.

ESTABLISHMENT OF THE PROJECT

Scope the Project.

Dealing with the Year 2000 issue is a critical activity for each Council. It requires careful planning and resourcing to ensure a successful conclusion. The scoping of the project involves an initial evaluation of the magnitude of the project including:

- Establishing the objectives for the project;
- Establishing the project time frame; and
- Identifying current work being undertaken towards Year 2000 objectives.

Appoint a Project Team Leader.

Dealing with the Year 2000 issue is a critical activity of the Council. As mentioned previously, there is the potential for significant legal liability. It is important that there is a single person who has the responsibility to coordinate and lead the project. The Project Team Leader should be given the authority to implement the project as expeditiously as possible, within an appropriate approval framework. The Council and the CEO should delegate as much authority as possible to the Project Team Leader.

The key roles for the Project Team Leader are:

- Lead the Project Team;
- Provide the strategic management of the project, including the review of all project planning and budgeting;
- Be a focal point in the organisation for the Year 2000 issue;
- Report regularly on the progress of the Year 2000 Project to the CEO and the Council;
• Where necessary, be the focal point for any external inquiries relating to Year 2000 compliance; and
• Exercise any delegated authority.

It is not necessary for the Project Team Leader to be a technical IT person, however they should have a good understanding of IT issues. The Project Team Leader must have a broad understanding of local government, its roles and responsibility and the issues it is currently facing. Project management skills would be very useful.

Appoint a Project Team.

A Project Team should be formed to carry out the necessary tasks. The tasks of the Project Team will include:
• Provide input to project plans and budgets
• Gathering data on date dependent functions;
• Assessing Year 2000 compliance of date dependent functions, including testing such functions;
• Prioritising risk and resource allocations;
• Identifying and costing solutions for non-complying functions;
• Monitoring containment and contingency planning; and
• Testing and implementing solutions.

The Project Team will include staff from a broad cross section of the organisation to ensure that all areas of operation are covered. It is not necessary that it include a person from every department, but that is certainly an approach that can be taken. It may also include external resources to cover any skill deficiencies or resource gaps. The Project Team must report to the Chief Executive Officer (CEO). The Project Team Leader needs to be given the authority to co-opt other staff as necessary. Regular reports are essential. In larger Councils it might be necessary to set up sub-committees to carry out some of the tasks.

Involve the Council.

It is important that the elected members are involved in the process for two reasons:
• The Year 2000 project is a critical activity for the organisation; and
• It will require appropriate resourcing and funding, with both immediate and future budget implications.
An on-going commitment to reporting should be established which might include monthly reports until the bulk of the project work is undertaken.

Ensure that the elected members are given sufficient information so that they understand the nature of the Year 2000 issue and that they are kept up-to-date with progress.

**Develop a Workplan.**

Once the Project Team is established its first task will be to develop a workplan for completion of the project objectives. The workplan will include:

- A schedule of the project tasks;
- The timeline for each task;
- The resources for each task;
- Project milestones; and
- Reporting arrangements.

The workplan must be signed off by the Chief Executive Officer.

The workplan is a dynamic document and needs to be regularly reviewed to add and delete tasks and to adjust the timeframe, as necessary.

**Set a Project Budget.**

It is unlikely that any Council will be able to undertake a Year 2000 project within its current budget framework and the workplan will provide a good guide to the likely expenditures. The budget for the project would include:

- Internal resource implications (e.g. overtime, casual wages, project costs);
- External resource implications (e.g. consultants, impact on outsourced functions); and
- An initial estimate of the cost of replacing or rectifying hardware, software or other equipment.
Anecdotal evidence suggests that the initial budget is likely to be only 20% of the final costs. Make sure that elected members are aware that the initial budget amount set is likely to be only a percentage of the final cost.

The budget needs to be endorsed by the Chief Executive Officer and approved by the Council.

**Like the workplan, the budget will need to be regularly reviewed. Replacement and rectification costs will become clearer as the project proceeds.**

**Staff Education and Communication.**

The Year 2000 project will have a significant impact on the organisation and affect all staff. It will be a critical organisational activity and every person employed by the Council needs to know what is going on. The ‘need to know’ will become more critical as the project proceeds and all staff become involved in identifying date dependent functions and suggest and test solutions.

It is important that all staff understand what the Year 2000 issue is and what part they will play in its resolution. Resolving the Year 2000 issue will be a shared responsibility.

Regular briefings on progress should be made. This might take the form of:
- A Year 2000 newsletter;
- A standing discussion topic at staff meetings; and
- Circulating progress reports throughout the organisation.

The outcomes of the education/communication process are:
- A clear understanding of the Year 2000 issue; and
- A shared commitment to resolving the issue.
Set Up the Audit Process

The audit process must begin as soon as work on the project commences. It is important that the audit is managed independently to the Year 2000 Project. It is therefore recommended that the Senior Management Team, or in the case of a smaller Council, the CEO be responsible for the audit process. This will include supervision of the independent auditor(s) and monitoring the project on a regular basis. (See step 6 for details on who should do the audit).

Link with Other Council Project Teams

It is highly likely that there will be implications for other projects that the Council is undertaking. It is essential that links are established between the Year 2000 Project Team and other Council Project Teams to ensure that the Year 2000 issue is dealt with prior to implementing new processes, procedures, equipment or relationships. For example, a project to acquire a Geographic Information System will need guidance to ensure that prospective systems are tested for Year 2000 compliance.

Review and Document.

The Year 2000 Project will be dynamic. As the project proceeds, changes will be made to the objectives, timelines, tasks and budget. Regular review meetings, scheduled by the Project Team Leader and involving the Project Team, need to occur to identify progress, confirm project changes and ratify the changes. Regular reports will need to be made to the CEO and the Council.

The Project Team Leader and the CEO will need to sign-off on the changes. Where budget changes are required, Council approval will be necessary.

A project file (or files) must to be created. All project meeting minutes, forms and checklists should be retained, along with copies of progress reports and approvals. This documentation may be vital in the event of a liability claim.
### Step 1 - Establishment of the Project - Checklist

<table>
<thead>
<tr>
<th>Task</th>
<th>Done</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establishment of the objectives of the Y2K project.</td>
<td></td>
</tr>
<tr>
<td>Selection of a Team Leader.</td>
<td></td>
</tr>
<tr>
<td>Establishment of the project timelines.</td>
<td></td>
</tr>
<tr>
<td>Establishment of reporting lines to CEO.</td>
<td></td>
</tr>
<tr>
<td>Advice to Council of the project objectives and timelines.</td>
<td></td>
</tr>
<tr>
<td>Select a Project Team.</td>
<td></td>
</tr>
<tr>
<td>Establishment of links with other Council project teams.</td>
<td></td>
</tr>
<tr>
<td>Develop communication formats for staff.</td>
<td></td>
</tr>
<tr>
<td>Brief the Project Team.</td>
<td></td>
</tr>
<tr>
<td>Publish the objectives and timeline to staff.</td>
<td></td>
</tr>
<tr>
<td>Advise community of the project.</td>
<td></td>
</tr>
<tr>
<td>Development of a workplan including:</td>
<td></td>
</tr>
<tr>
<td>• Schedule of project tasks;</td>
<td></td>
</tr>
<tr>
<td>• Timeline for each task;</td>
<td></td>
</tr>
<tr>
<td>• Resources required for each task;</td>
<td></td>
</tr>
<tr>
<td>• Project milestones;</td>
<td></td>
</tr>
<tr>
<td>• Establish meeting schedule;</td>
<td></td>
</tr>
<tr>
<td>• Reporting arrangements.</td>
<td></td>
</tr>
<tr>
<td>CEO signs off on work plan.</td>
<td></td>
</tr>
<tr>
<td>Initial project budget developed:</td>
<td></td>
</tr>
<tr>
<td>• Internal resource implications;</td>
<td></td>
</tr>
<tr>
<td>• External resource implications;</td>
<td></td>
</tr>
<tr>
<td>• Broad estimate of replacement/ rectification costs.</td>
<td></td>
</tr>
<tr>
<td>CEO/ Management Team review and endorse budget.</td>
<td></td>
</tr>
<tr>
<td>Seek Council approval of the budget.</td>
<td></td>
</tr>
<tr>
<td>Establishment of project documentation including:</td>
<td></td>
</tr>
<tr>
<td>• Project files;</td>
<td></td>
</tr>
<tr>
<td>• Creation/ adoption of project forms.</td>
<td></td>
</tr>
<tr>
<td>Appoint Project Auditor reporting the CEO or Senior Management Team</td>
<td></td>
</tr>
<tr>
<td>Commence audit of project.</td>
<td></td>
</tr>
<tr>
<td>Review project objectives.</td>
<td></td>
</tr>
<tr>
<td>Review resource requirements and project budget.</td>
<td></td>
</tr>
<tr>
<td>Management approval/ endorsement of changes.</td>
<td></td>
</tr>
<tr>
<td>Council approval of budget changes.</td>
<td></td>
</tr>
<tr>
<td>Update Council on progress.</td>
<td></td>
</tr>
<tr>
<td>Advise staff and community of progress.</td>
<td></td>
</tr>
<tr>
<td>Review project documentation.</td>
<td></td>
</tr>
<tr>
<td>Management sign-off on Step 1.</td>
<td></td>
</tr>
</tbody>
</table>
STEP 2.

IDENTIFICATION OF ALL DATE DEPENDENT DEVICES, APPLICATIONS, SERVICES AND COMMUNITY OR BUSINESS RELATIONSHIPS.

Introduction

Commencement of Step 2 is not dependent on completion of Step 1. As soon as the Year 2000 Project Team is created and briefed the work in Step 2 can commence. It is critical that work on the project proceeds as quickly as time permits. Date dependent functions most likely to affect the operations of the Council should be dealt with earlier than those function which will have minimal impact.

Involve all Staff.

This is the most important step in the whole process - the identification of date dependent devices, applications, services and relationships. It is unlikely that any single staff member will have a complete knowledge of all such devices or applications, no matter what the size of the Council. Anyway, why take the risk of letting something go unnoticed? Every member of staff should be involved in the process, either as an individual or as part of a work team. It is important that staff on leave at the time of the initial identification process be given the opportunity to provide input on their return to work. The Project Team Leader and the Project Team will provide assistance and direction to all staff involved in the project.
Data Collection

Consideration should be given to capturing the information electronically. It may be easier to log and monitor the data and future steps on an electronic database. If the decision is made to collect the data electronically it will be important to ensure that each work area retains an electronic copy of the data and that the central collection is regularly backed-up to prevent loss of data and an extensive and time consuming exercise to recreate it.

Perhaps it is stating the obvious to suggest that the electronic instrument used for the data collection should be Year 2000 compliant! If the Council does decide on an electronic data collection process make sure provision is made for staff and organisational areas that do not have access to a computer. There may need to be some element of manual collection where staff have no training in operating a computer.

Identify all Date Dependent Devices and Applications

Distribute multiple copies of the data collection forms to every manager, work team leader or key staff within the Council. Give clear, unambiguous instructions that every staff member is to participate in identifying date dependent devices and applications. In this situation, it is better to have multiple notifications rather than no notice of a device or application that has a critical effect on Council operations.

While the term ‘applications’ is often used to refer to packaged and self-written software it also includes all of the files associated with the software, which may well contain critical Council data and information. These files may include material such as standard contract documents and other critical text or documents, spreadsheets and databases. It is essential that all such files are identified.
Identify all Suppliers of Goods and Services

The potential for business disruption is not limited to internal Council operations. Suppliers of goods and services to the Council also have the potential to impact on how the Council does its business. This could be more critical in the case where Council has outsourced service delivery. Councils may have a large number of suppliers. While it is useful to identify all suppliers, it is critical that the key suppliers are identified early. Key suppliers are those that provide goods and services that will impact on:

- Public health and safety;
- Essential services (e.g. water supply, electricity);
- The Council’s ability to provide goods and services to its customers: and
- The Council’s ability to care for its workforce.

For example, many Councils have outsourced their garbage collection. The introduction of computer controlled engine management systems in vehicles and the use of computer technology in robotic arm controlled pick-up operations has the potential to be a Year 2000 issue.

Every supplier of goods and services to the Council should be identified. Key suppliers should be a priority for action.

Purchases Between Now and the Year 2000

It is important to ensure that goods and services purchased between now and the end of the year are Year 2000 compliant. Reports suggest that non-compliant goods may be dumped on the market at reduced prices and Councils are urged to be vigilant.

Staff authorised to sign Council purchase orders should be fully briefed on the need to check that future purchases of goods and services are Year 2000 compliant. Some Councils have incorporated additional details on the Purchase Order requiring the signing officer to certify that the goods or services are compliant.
Identify all Service Relationships

The Council will provide a wide range of services within its community, through relationships with a broad range of agencies, community groups and other organisations. These relationships include data interfaces with external organisations (e.g. banks, credit unions, Australia Post etc.). All of the services and relationships need to be identified. Key relationships will be a priority for action.

Monitor, Review and Document

This is a time consuming step and involves the whole organisation. The potential for time slippage is high and it is essential that strict monitoring processes are implemented to ensure the timely and complete collection of data. Be realistic in setting deadlines but do not put the process at risk through inflexibility.

Regularly review the amount of data being collected and the impact on each part of the organisation. Be prepared to adjust target dates where necessary - the next step can begin while the identification process continues. Ensure that all forms are documented and if the collection is done electronically, make sure that appropriate back-up procedures are in place. Good documentation will provide both an audit trail and the opportunity to readily identify matters not addressed.
### Step 2 - Identify Date Dependent Devices, Applications, Services and Community or Business Relationships - Checklist

<table>
<thead>
<tr>
<th>Task</th>
<th>Done</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team Leader and Project Team to develop briefing material for staff, including instructions for data collection process.</td>
<td></td>
</tr>
<tr>
<td>Conduct series of staff briefings addressing how to:</td>
<td></td>
</tr>
<tr>
<td>• Use the forms;</td>
<td></td>
</tr>
<tr>
<td>• Backup electronic data collection;</td>
<td></td>
</tr>
<tr>
<td>• Work within the timelines;</td>
<td></td>
</tr>
<tr>
<td>• Identify and record:</td>
<td></td>
</tr>
<tr>
<td>• Date dependent devices;</td>
<td></td>
</tr>
<tr>
<td>• Date dependent software;</td>
<td></td>
</tr>
<tr>
<td>• Data files;</td>
<td></td>
</tr>
<tr>
<td>• Suppliers of goods/services;</td>
<td></td>
</tr>
<tr>
<td>• Business and community relationships;</td>
<td></td>
</tr>
<tr>
<td>Team Leader to follow-up regularly on the data collection process.</td>
<td></td>
</tr>
<tr>
<td>Project Team to review project objectives.</td>
<td></td>
</tr>
<tr>
<td>Review resource requirements.</td>
<td></td>
</tr>
<tr>
<td>Review project budget.</td>
<td></td>
</tr>
<tr>
<td>Seek management approval/ endorsement of changes.</td>
<td></td>
</tr>
<tr>
<td>Seek Council approval of budget changes.</td>
<td></td>
</tr>
<tr>
<td>Update Council on progress.</td>
<td></td>
</tr>
<tr>
<td>Advise staff of progress.</td>
<td></td>
</tr>
<tr>
<td>Advise community of progress.</td>
<td></td>
</tr>
<tr>
<td>Review project documentation.</td>
<td></td>
</tr>
<tr>
<td>Management sign-off on Step 2.</td>
<td></td>
</tr>
</tbody>
</table>
Potential Date Dependent Functions

Information Systems
Mainframes
Mini systems
Servers
Personal Computers
Laptop computers
Operating systems
Application Software
Application Files
Modems
Routers
Switches
Hubs
Controllers
Projector
Printers
Plotters
E-mail

Devices
2-way radio
Air conditioners
Automatic doors
Bore pumps
Buses
Cars
Coin operated lighting systems
Community newspaper publisher
Contracted printer of Council notices/ brochures
Digital camera
Digitising tablet
Dishwashers
EFTPOS
Fax machine
Forklift
Fridges / cool rooms
Fuel pumps
Garbage contractor
Graders
Heaters
Hot water systems
Hydraulic jacks
Hydraulic wheelchair lifter
Intercom
Lathe
Lift Systems
Microfiche equipment
Microwave
Mobile phones
Noise monitors
On-hold message provider
PABX
Public Address systems
Refrigeration Systems
Security Systems
Stoves
Sweeper
Theodolite
Traffic counters
Trucks
Utilities

Services
Water Supply
Sewage/STED
Electricity
Garbage Collection
Health and Public Safety
Payroll Services
Telecommunications
Financial Services

Relationships
Elected Members
Staff
Major Contractors and Suppliers
Financial Institutions
Community Groups
Service and Sporting Clubs
Regional Associations
Other Councils
State and Federal Agencies
Unions
Employer Groups
### Potential Dates for Year 2000 Testing

<table>
<thead>
<tr>
<th>Date to Test</th>
<th>Reason to Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 9, 1999</td>
<td>{potential current year dates}</td>
</tr>
<tr>
<td>June 30, 1999</td>
<td>{potential current year dates}</td>
</tr>
<tr>
<td>July 1, 1999</td>
<td>{which may cause problems}</td>
</tr>
<tr>
<td>August 21, 1999</td>
<td>}</td>
</tr>
<tr>
<td>September 9, 1999</td>
<td>potential end of file marker</td>
</tr>
<tr>
<td>December 31, 1999</td>
<td>rollover date</td>
</tr>
<tr>
<td>Dates across change</td>
<td>{ensure correct processing}</td>
</tr>
<tr>
<td>Dates in 2000</td>
<td>{across century change}</td>
</tr>
<tr>
<td>Dates in 2001</td>
<td>}</td>
</tr>
<tr>
<td>Dates in 2004</td>
<td>next leap year</td>
</tr>
<tr>
<td>January 1, 2000</td>
<td>rollover date</td>
</tr>
<tr>
<td>January 3, 2000</td>
<td>first public holiday</td>
</tr>
<tr>
<td>January 4, 2000</td>
<td>first normal work day</td>
</tr>
<tr>
<td>January 7, 2000</td>
<td>first Friday</td>
</tr>
<tr>
<td>January 31, 2000</td>
<td>last day of first month</td>
</tr>
<tr>
<td>February 1, 2000</td>
<td>first day of second month</td>
</tr>
<tr>
<td>February 28, 2000</td>
<td>day before leap year date</td>
</tr>
<tr>
<td>February 29, 2000</td>
<td>leap year date</td>
</tr>
<tr>
<td>February 30, 2000</td>
<td>invalid date</td>
</tr>
<tr>
<td>March 1, 2000</td>
<td>first day after leap year</td>
</tr>
<tr>
<td>March 31, 2000</td>
<td>first end of quarter</td>
</tr>
<tr>
<td>April 1, 2000</td>
<td>first day of second quarter</td>
</tr>
<tr>
<td>April 3, 2000</td>
<td>first Monday of second quarter</td>
</tr>
<tr>
<td>April 30, 2000</td>
<td>first month ending on weekend</td>
</tr>
<tr>
<td>June 30, 2000</td>
<td>end of financial year</td>
</tr>
<tr>
<td>July 1, 2000</td>
<td>start of new financial year</td>
</tr>
<tr>
<td>December 31, 2000</td>
<td>first calendar year end</td>
</tr>
<tr>
<td>January 1, 2001</td>
<td>beginning of next year</td>
</tr>
<tr>
<td>February 29, 2001</td>
<td>invalid leap year</td>
</tr>
<tr>
<td>March 1, 2001</td>
<td>test of invalid leap year</td>
</tr>
<tr>
<td>February 29, 2004</td>
<td>valid leap year test</td>
</tr>
<tr>
<td>March 1, 2000</td>
<td>valid leap year test</td>
</tr>
<tr>
<td>January 1, 2011</td>
<td>potential beginning of file marker</td>
</tr>
<tr>
<td>November 11, 2011</td>
<td>potential beginning of file marker</td>
</tr>
</tbody>
</table>
Year 2000 Issue - Forms

Two simple forms have been designed for use in the process. The forms are contained in a Microsoft Excel spreadsheet called “Y2K_Forms.xls”. The forms are designed to provide a framework for recording the essential information about each date dependent function. Ancillary documentation can be attached to the forms to provide a fuller picture. The forms can be used electronically by tailoring the form and copying multiple copies throughout the spreadsheet. For example, four worksheets could be set up to handle applications, devices, relationships and services, with multiple copies of the forms in each worksheet.

The first form – “Year 2000 Inventory” – can be used through Steps 2, 3 and 4 to record details about each date dependent function. Simply complete the relevant data for each step. In most cases this is simply circling the relevant area of the form. It is important that a record is kept of each form, by allocating a serial number, prefixed A, D, R or S for the different functions, and maintaining a simple log of (serial number and description of function) to keep track of the process.

The second form – “Year 2000 testing” – can be used in assessing Year 2000 compliance of the function or in assessing Year 2000 compliance of the solution or in both circumstances. The serial number should be linked to Inventory serial number and subscripted for the testing purpose for which it is used. Again, a simple log should be maintained to keep track of the process – noting that not all functions will be tested.
STEP 3.

IDENTIFICATION OF THE RISK OF BUSINESS DISRUPTION

Introduction

Again, it is not necessary to wait until Step 2 is completed before starting on Step 3. The actions in Step 3 can be commenced as date dependent functions are identified, particularly those functions considered to have a significant impact on the Council’s operations.

Business Risk

The work of the Mutual Liability Scheme in educating Councils on risk management will be useful in this project step. Most Councils will have many devices, applications and processes that are date dependent. However, they are not all critical processes. Assessing the impact of a potential business disruption will assist Councils to prioritise the effort required to become Year 2000 compliant.

It is suggested that Councils use a simple ranking system to identify business risk. The system will assess two factors – the criticality of the process to the Council’s operations and the impact on the Council’s operations if the process is disrupted – ranked 1 to 4 in order of priority.

Critical to Council Operations

Low Impact

High Impact
Non-Critical to Council Operations

Ranking and Classifying all Date Dependent Functions

This is a two stage process.

**Stage 1:** All devices, applications, processes, services and relationships identified in Step 2 should be ranked as follows:

1. **Business Critical/High Impact**
   - Examples include essential computer systems, building security and lift systems, electronic controllers of essential equipment, electronic recording devices, contracts for essential services, data interfaces for revenue and payroll operations, chlorinating plants, refrigeration equipment - nursing homes, telecommunications (including two-way radios).

2. **Business Critical/Low Impact**
   - Examples include fax and adding machines, contracts for non-essential services.

3. **Business Non-Critical/High Impact**
   - Examples include watering systems, non-essential metering and recording equipment, building lifts in low-rise buildings.

4. **Business Non-Critical/Low Impact**
   - Examples include non-essential electronic equipment, non-essential refrigeration equipment (e.g. water coolers), minor maintenance contracts.

Any function which has the potential to impact on the safety, health and welfare of the community should be ranked as 1. Typically, this would include such functions as traffic lights, sewerage systems, water and electricity supply and security operations. In addition, functions which affect business continuity or the employment of the Council’s workforce will most likely be ranked as 1.

Again, all staff must be involved in the process. However, there needs to be a structure for ensuring that the ranking is a fair one as the rankings will be used to prioritise the effort that will go into resolving potential business risks. **A team approach to ranking each function is likely to be more productive and accurate.**
Stage 2: In order of priority, the functions should be classified as either:

- Year 2000 compliant; or
- Not Year 2000 compliant.

To determine Year 2000 compliance it will be necessary to:

- Trial each device or application for compliance by running it through a series of test designed to determine how it handles the various date rules;
- Obtain relevant warranties from the supplier or manufacturer, for embedded chip devices where it may not be possible to simulate tests;
- Test data interfaces with external organisations or obtain warranties that the interfaces are Year 2000 compliant; and
- Assess the potential impact of the Year 2000 issue on contracts and relationships.

Every function classified as being Year 2000 compliant must be certified by the Project Team. Where the source of the certification is an external one, the certification should be accompanied by a warranty or an impact statement from the vendor of the device or application.

A log of all complying functions must be established and maintained. Reference can be made in the log to the documentation which provides the certification.

Equipment that has been certified as Year 2000 compliant should have a non-removable sticker attached to it to identify that it is compliant. Where such equipment is repaired or replaced, it needs to be checked for continuing compliance.

Monitor, Review and Document

Although the ranking system is simple, there may be a degree of complexity in assigning a ranking. It is important that the process is not unduly delayed, so that a complete picture of the size and cost of the task to make the Council Year 2000 compliant is understood as early as possible.
The ranking for each function should be reviewed by the Project Team and any doubts resolved through discussion with the team who did the ranking. **It is the Project Team’s role to collate all responses and create a priority listing across all functions of the Council.**

The final ranking for each device and application needs to be recorded on the relevant form. All statements/ correspondence from external suppliers and service providers must be filed and retained. Where the Council has relied on such statements they will be important documents in any legal proceedings.
### Step 3 - Identification of the Risk of Business Disruption - Checklist

<table>
<thead>
<tr>
<th>Task</th>
<th>Done</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assess the business risk of all devices/software/suppliers.</td>
<td></td>
</tr>
<tr>
<td>Rank the business risk of all devices/software/suppliers.</td>
<td></td>
</tr>
<tr>
<td>Project Team reviews the business risk rankings.</td>
<td></td>
</tr>
<tr>
<td>Project Team signs off on the business risk rankings.</td>
<td></td>
</tr>
<tr>
<td>Determine if device/application/supplier is Year 2000 compliant</td>
<td></td>
</tr>
<tr>
<td>Obtain necessary warranties/confirmation/impact statement from external sources/suppliers</td>
<td></td>
</tr>
<tr>
<td>Sign-off on compliance/non-compliance</td>
<td></td>
</tr>
<tr>
<td>For complying devices, place “Year 2000 compliant” sticker on device</td>
<td></td>
</tr>
<tr>
<td>Create/maintain log of complying devices/software/suppliers</td>
<td></td>
</tr>
<tr>
<td>Review project objectives.</td>
<td></td>
</tr>
<tr>
<td>Review resource requirements.</td>
<td></td>
</tr>
<tr>
<td>Review project budget.</td>
<td></td>
</tr>
<tr>
<td>Seek management approval/endorsement of changes.</td>
<td></td>
</tr>
<tr>
<td>Seek Council approval of budget changes.</td>
<td></td>
</tr>
<tr>
<td>Update Council on progress.</td>
<td></td>
</tr>
<tr>
<td>Advise staff of progress.</td>
<td></td>
</tr>
<tr>
<td>Advise community of progress.</td>
<td></td>
</tr>
<tr>
<td>Review project documentation.</td>
<td></td>
</tr>
<tr>
<td>Management sign-off on Step 3.</td>
<td></td>
</tr>
</tbody>
</table>
STEP 4.

IDENTIFICATION OF SOLUTIONS

Introduction

As with previous steps, the actions in this step can be going on concurrently with the previous step or steps. In fact, it is essential that this happens to ensure that the project is completed as early as possible and provides a significant time buffer for contingency planning.

Prioritising the Workload

It is from this point on that it is essential to prioritise the workload. The time for completing the project is finite. It is not possible to reschedule the appearance of January 1, 2000! Work should start on finding solutions to devices and applications ranked 1 as a first priority, then those ranked 2, then 3, then 4.

The ranking of many devices and applications as 1 and 2 may indicate the need for additional resources, either internal or external.

The closer the time to January 1, 2000 the greater the demand there will be for external resources, new equipment and modifications to existing equipment. The Council should aim to complete Step 4 by June 30, 1999 at the latest.
Containment

In Step 3, date dependent functions ranked 1 or 2, that are Year 2000 compliant, were identified. It is essential that the Council ensures that these functions remain Year 2000 compliant. Permission of the Project Team, through the Project Team Leader must be given for any repairs, modifications or changes. – such permission is separate from budget considerations. After any repairs, modifications or changes the function must re-certified.

Identifying Solutions

There are five possible solutions that can be applied to the Year 2000 issue, but not all solutions are available in each case. They are:

1. **Replace the device or application:**
   For example; get the latest version of software (provided it is Year 2000 compliant), or get new software that is Year 2000 compliant, upgrade computer equipment, or replace in-house developed software with packaged software.

2. **Redevelop the software:**
   For example; redevelop non-complying aspects of in-house developed software to make the software Year 2000 compliant.

3. **Rectify any non-complying aspects of the device or application:**
   For example; with embedded chips obtain an upgraded and complying chip.

4. **Retire the device:**
   For example; it may be appropriate in non-essential functions to find a ‘work around’ solution.

5. **Do nothing. (BUT develop a contingency plan to deal with any business disruption.)**
   For example; this may be all that can be achieved in the timeframe for non-critical low-impact functions, but contingency plans should still be developed, as with all other solutions.
Each of the five solutions will have a cost and a timeframe associated with its implementation. In considering which solution to adopt the Council needs to assess:

- The effectiveness of the solution;
- Its cost; and
- How soon it needs to be implemented.

It is likely that the Council will need to involve the users of the device or application in making the assessment on an appropriate solution. Be careful to ensure that the solution is not ‘over the top’. For example, it may be more appropriate, and cost-effective, to replace the software that runs a PC than to replace the PC.

Remember, the Project Team will need to convince the CEO and the Council that the solution is effective from both cost and efficiency perspectives.

**Contingency Planning**

It may become clear at this stage of the project that there are a number of devices and applications that will not be made Year 2000 compliant by January 1, 2000. This may be because:

- There is not enough time to implement a solution;
- The process is one in transition, which will soon be the subject of significant change for non-Year 2000 reasons;
- The impact of not making the change is low.

For some of those devices and applications it will be necessary to adopt some form of contingency planning. Typically, the contingency plans could include:

- An arrangement to ‘work around’ the process;
- A manual process; and
- Temporary suspension of the process.

There is also a need to plan for any unintended consequences. For instance, there is the potential that some functions, even though they have been tested, may not operate correctly on January 1, 2000 or other significant dates. Councils should consider ensuring that key staff are available for call-out during the critical date rollover period and that other staff are also available to provide backup where necessary.
Developing an inspection plan for key facilities and sites, even though they have already been tested, may be good insurance against unforeseen problems. It is also advisable to ensure Council holds sufficient stock of essential supplies to minimise disruption should a breakdown occur in the supply chain.

Monitor, Review, Documentation and Approval

By this stage of the project, time will be very tight and January 1, 2000 will be fast approaching. Monitoring progress towards completion of Step 4 is critical and involves ensuring that solutions will be achieved before business operations are disrupted.

Be prepared for an intensive period of review, which is staged to cater for each priority ranking.

The potential solutions to the problem should be carefully monitored and documented by the Project Team and the users. The resources, costs, timeframe and effectiveness of competing solutions should be assessed and a recommendation made as to the appropriate solution.

To assist in meeting the timeframe for implementation it may be necessary to get staged approval of the budget as each group of devices and applications is worked through this step.
Step 4 - Identification of Solutions - Checklist

<table>
<thead>
<tr>
<th>Task</th>
<th>Done</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop Containment Plan for complying functions</td>
<td></td>
</tr>
<tr>
<td><strong>Assess devices/applications/suppliers ranked 1.</strong></td>
<td></td>
</tr>
<tr>
<td>• Determine appropriate solutions.</td>
<td></td>
</tr>
<tr>
<td>• Work team signs off on appropriateness of solutions.</td>
<td></td>
</tr>
<tr>
<td>• Where necessary, seek management approval or endorsement of solutions</td>
<td></td>
</tr>
<tr>
<td>• Where necessary, seek Council approval of budget impact of solutions</td>
<td></td>
</tr>
<tr>
<td>• For devices/software/suppliers ranked 1 that will not be year 2000 compliant by January 1, 2000 develop contingency plans and seek endorsement/approval of work team/Project Team/management/Council.</td>
<td></td>
</tr>
<tr>
<td><strong>Assess devices/applications/suppliers ranked 2.</strong></td>
<td></td>
</tr>
<tr>
<td>• Determine appropriate solutions.</td>
<td></td>
</tr>
<tr>
<td>• Work team signs off on appropriateness of solutions.</td>
<td></td>
</tr>
<tr>
<td>• Where necessary, seek management approval or endorsement of solutions</td>
<td></td>
</tr>
<tr>
<td>• Where necessary, seek Council approval of budget impact of solutions</td>
<td></td>
</tr>
<tr>
<td>• For devices/software/suppliers ranked 2 that will not be year 2000 compliant by January 1, 2000 develop contingency plans and seek endorsement/approval of work team/Project Team/management/Council.</td>
<td></td>
</tr>
<tr>
<td><strong>Assess devices/applications/suppliers ranked 3.</strong></td>
<td></td>
</tr>
<tr>
<td>• Determine appropriate solutions.</td>
<td></td>
</tr>
<tr>
<td>• Work team signs off on appropriateness of solutions.</td>
<td></td>
</tr>
<tr>
<td>• Where necessary, seek management approval or endorsement of solutions</td>
<td></td>
</tr>
<tr>
<td>• Where necessary, seek Council approval of budget impact of solutions</td>
<td></td>
</tr>
<tr>
<td>• For devices/software/suppliers ranked 3 that will not be year 2000 compliant by January 1, 2000 develop contingency plans and seek endorsement/approval of work team/Project Team/management/Council.</td>
<td></td>
</tr>
</tbody>
</table>
### Assess devices/applications/suppliers ranked 4.

- Determine appropriate solutions.
- Work team signs off on appropriateness of solutions.
- Where necessary, seek management approval or endorsement of solutions.
- Where necessary, seek Council approval of budget impact of solutions.
- For devices/software/suppliers ranked 4 that will not be Year 2000 compliant by January 1, 2000, develop contingency plans and seek endorsement/approval of work team/Project Team/management/Council.

| Review project objectives. |
| Review resource requirements. |
| Review project budget. |
| Seek management approval/endorsement of changes. |
| Seek Council approval of budget changes. |
| Update Council on progress. |
| Advise staff of progress. |
| Advise community of progress. |
| Review project documentation. |
| Management sign-off on Step 4. |
STEP.  5

IMPLEMENTATION AND TESTING OF SOLUTIONS

Introduction

This step must also commence before the completion of succeeding steps. Those date dependent functions that have now been prioritised as ranking 1 and 2 require the earliest implementation and testing of solutions so that the longest lead time is available for testing, and where necessary, re-testing.

Internal Solutions

Where the solution is for:
- internal software redevelopment;
- internal rectification of non-complying aspects of the device or application;
- retirement of the device or application; or
- some contingency plan:

it will be necessary to schedule the internal workload. Such scheduling may include the employment of casual or contract staff and the appropriate approvals will be necessary.

Each solution needs to be scheduled, with clear targets for implementation and testing. The schedule should be regularly reviewed.

There may be difficulty in employing suitable staff or contractors as it is probable that the demand for staff and contractors with the appropriate skills is likely to be high leading up to and past January 1, 2000.
External Solutions

Where the solution calls for:
• replacement of the device or application;
• redevelopment; or
• rectification of the device or application
by an external party, consideration needs to be given to the Council’s policies on tendering and the letting of contracts.

There should not be a lessening of internal control, but there may be a case for more flexibility in applying the Council’s policy, or indeed, some modification to the policy, to recognise the timing constraints likely to apply during this period.

Testing the Solution

This is a critical activity. Failure to test a solution has the same potential for business disruption as failure to make the device or application Year 2000 compliant. Included in the schedule for implementation should be sufficient time to enable the rigorous testing of the solution. The purpose of testing is to ensure that:
• The solution works as expected;
• The solution is robust;
• The solution has not introduced other errors or complexities that might cause business disruption; and
• The solution can be certified as Year 2000 compliant.

A warranty should be obtained from external suppliers of solutions, which provides that the solution is currently complying and will continue to comply for the life of the product. It is probable that suppliers and contractors will be reluctant to provide such warranties and Councils will need to include the lack of such warranties in their contingency planning. Testing procedures may give some level of assurance in this regard.

Further information on testing the solutions is included in the checklist for Step 5.

Resource list C provides a pro forma to use in the testing process.

Resource list D provides a useful reference on developing test plans.
Containment.

Once a device or application has been certified as being Year 2000 compliant it must be maintained in that state. Approval of the Year 2000 Project Team must be given for any repairs, modifications or changes. After any repairs, modifications or changes the device or application needs to be re-tested and re-certified by the Year 2000 Project Team.

Monitoring, Review and Documentation

The testing process needs to be kept under constant monitoring by the Project Team to ensure that the deadlines are met. Depending on the number of solutions to be implemented, it may be necessary to provide additional resources if slippage occurs.

The results of the testing need to be kept under review. Where the solutions do not work, there will need to be some contingency planning to cover the situation. This could be either another solution or some temporary arrangement.

All testing must be documented, with clear evidence of the test results forming part of the documentation. This includes any results from re-testing. Equipment that has been certified as Year 2000 compliant should have a non-removable sticker attached to it to identify that it is compliant. Where such equipment is repaired or replaced, it needs to be checked for continuing compliance.
## Step 5 - Implementation and Testing of Solutions - Checklist

<table>
<thead>
<tr>
<th>Task</th>
<th>Done</th>
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<tbody>
<tr>
<td>Project Team to assess resource implications of testing.</td>
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<tr>
<td>Develop revised budget for testing.</td>
<td></td>
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<tr>
<td>Management approval of testing resource budget.</td>
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<tr>
<td>Council approval of testing resource budget.</td>
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<tr>
<td>Schedule solution testing.</td>
<td></td>
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<tr>
<td>Assign members of Project Team to a ‘test set’.</td>
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<tr>
<td>Develop a test strategy.</td>
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<tr>
<td>Prepare test data</td>
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<tr>
<td>Brief and train staff.</td>
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<tr>
<td>Purchase or create solutions.</td>
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<tr>
<td>Execute the tests:</td>
<td></td>
</tr>
<tr>
<td>• Solution works and is robust?</td>
<td></td>
</tr>
<tr>
<td>• Solution does not introduce other errors/ problems?</td>
<td></td>
</tr>
<tr>
<td>• Warranty/ indemnity obtained from supplier for external solution?</td>
<td></td>
</tr>
<tr>
<td>Document solution results.</td>
<td></td>
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<tr>
<td>Certify solution compliant.</td>
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<tr>
<td>Create and maintain log of compliant solutions.</td>
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<tr>
<td>Where necessary, revise solution and retest.</td>
<td></td>
</tr>
<tr>
<td>Update Containment Plan as necessary</td>
<td></td>
</tr>
<tr>
<td>Develop contingency plans as necessary</td>
<td></td>
</tr>
<tr>
<td>Project Team to review contingency plans</td>
<td></td>
</tr>
<tr>
<td>Review project objectives.</td>
<td></td>
</tr>
<tr>
<td>Review resource requirements.</td>
<td></td>
</tr>
<tr>
<td>Review project budget.</td>
<td></td>
</tr>
<tr>
<td>Seek management approval/ endorsement of changes.</td>
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</tr>
<tr>
<td>Seek Council approval of budget changes.</td>
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</tr>
<tr>
<td>Update Council on progress.</td>
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<tr>
<td>Advise staff of progress.</td>
<td></td>
</tr>
<tr>
<td>Advise community of progress.</td>
<td></td>
</tr>
<tr>
<td>Review project documentation.</td>
<td></td>
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<tr>
<td>Management sign-off on Step 5.</td>
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</tbody>
</table>
STEP 6. AUDITING THE PROCESS

Audit - A Continuous Process

It would be a serious mistake to leave the audit of this process to the end of the project. Each step has included approval, documentation and review issues and the processes are outlined in the checklists.

The Step 6 checklist incorporates audit elements from the other five steps, along with some higher level audit checks.

The audit process should be an integral part of the project and the Step 6 checklist is designed to be completed as each phase of the project is completed.

Who Should Manage the Audit?

It is important to maintain independence of audit to ensure an accurate and objective review of all processes. It is therefore inappropriate for the people involved in the Year 2000 Project to undertake the audit.

As suggested in Step 1, the Management Team or, in the case of a smaller Council, the CEO are best placed to manage the audit process. This is not meant to imply that all the audit work is done by the Management Team or CEO.

The role of the Management Team or CEO in relation to auditing Year 2000 compliance include:

- Selecting the most appropriate person(s) to undertake the audit.
- Establishing audit reporting lines including feedback to the Year 2000 Project Team throughout each step of the project.
- Monitoring the total project on a regular basis.
- Ensuring critical timelines are met.
- Ensuring adequate resources are allocated to the project.
Who Should Do the Audit?

There are five options available for the conduct of the audit. They are:
1. If the Council has an internal audit function, the work could form part of the normal internal audit program;
2. In smaller Councils, with less resources, the Council’s external auditor could be used;
3. Use of an external consultant, with relevant experience;
4. An internal appointment of some one who is not intimately involved in the Year 2000 project; and
5. Use of a local computer supplier that the Council may already have a business relationship.
Step 6 - Auditing the Process - Checklist

<table>
<thead>
<tr>
<th>Task</th>
<th>Done</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project Start-Up</strong></td>
<td></td>
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<tr>
<td>Has the Council:</td>
<td></td>
</tr>
<tr>
<td>• Got the CEO’s commitment to the process</td>
<td></td>
</tr>
<tr>
<td>• Appointed a Year 2000 Project Team Leader</td>
<td></td>
</tr>
<tr>
<td>• Appointed a Year 2000 Project Team</td>
<td></td>
</tr>
<tr>
<td>• Defined Year 2000 compliance</td>
<td></td>
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<tr>
<td>• Conducted an Education/Awareness program for</td>
<td></td>
</tr>
<tr>
<td>➢ Elected Members</td>
<td></td>
</tr>
<tr>
<td>➢ All Staff</td>
<td></td>
</tr>
<tr>
<td>• Adopted an Initial Budget</td>
<td></td>
</tr>
<tr>
<td>• Developed a Workplan</td>
<td></td>
</tr>
<tr>
<td>• Created relevant files and record-keeping processes</td>
<td></td>
</tr>
<tr>
<td>• Signed off on Step 1 of the project</td>
<td></td>
</tr>
<tr>
<td>• Appointed a process auditor</td>
<td></td>
</tr>
<tr>
<td><strong>Identifying Date Dependent Functions</strong></td>
<td></td>
</tr>
<tr>
<td>Has the Council:</td>
<td></td>
</tr>
<tr>
<td>• Briefed all staff on the identification process</td>
<td></td>
</tr>
<tr>
<td>• Developed and distributed the necessary forms</td>
<td></td>
</tr>
<tr>
<td>• Developed a follow-up regime for the data collection process</td>
<td></td>
</tr>
<tr>
<td>• Identified all data dependent functions</td>
<td></td>
</tr>
<tr>
<td>• Documented all date dependent functions</td>
<td></td>
</tr>
<tr>
<td>• Reviewed the impact on the workplan</td>
<td></td>
</tr>
<tr>
<td>• Reviewed the impact on the project budget</td>
<td></td>
</tr>
<tr>
<td>• Updated staff and elected members on progress</td>
<td></td>
</tr>
<tr>
<td>• Signed off on Step 2 of the project</td>
<td></td>
</tr>
<tr>
<td><strong>Identifying Business Risk</strong></td>
<td></td>
</tr>
<tr>
<td>Has the Council:</td>
<td></td>
</tr>
<tr>
<td>• Identified the risk to business disruption of all date dependent functions</td>
<td></td>
</tr>
<tr>
<td>• Prioritised the risk</td>
<td></td>
</tr>
<tr>
<td>• In priority order, assessed Year 2000 compliance of each function</td>
<td></td>
</tr>
<tr>
<td>• Reviewed the impact on the workplan</td>
<td></td>
</tr>
<tr>
<td>• Reviewed the impact on the project budget</td>
<td></td>
</tr>
<tr>
<td>• Updated staff and elected members on progress</td>
<td></td>
</tr>
<tr>
<td>• Documented actions taken in this step</td>
<td></td>
</tr>
</tbody>
</table>
Identifying Solutions

Has the Council:

- Developed a Containment Plan for compliant functions
- Assessed potential solutions for functions ranked at Priority 1
- Sought management endorsement of the solutions
- Sought Council approval of any incremental budget requirements.
- Assessed potential solutions for functions ranked at Priority 2
- Sought management endorsement of the solutions
- Sought Council approval of any incremental budget requirements.
- Assessed potential solutions for functions ranked at Priority 3
- Sought management endorsement of the solutions
- Sought Council approval of any incremental budget requirements.
- Assessed potential solutions for functions ranked at Priority 4
- Sought management endorsement of the solutions
- Sought Council approval of any incremental budget requirements.
- Reviewed the impact on the workplan
- Reviewed the impact on the project budget
- Updated staff and elected members on progress
- Documented actions taken in this step
- Signed off on Step 4 of the project

Implementing Solutions

Has the Council:

- Developed a test strategy for solutions
- Obtained Council approval of the implementation/testing budget
- Tested solutions on a priority basis
- Documented test results
- Certified the solution as compliant
- Updated the Containment Plan
- Updated staff and elected members on progress
- Documented actions taken in this step
- Signed off on Step 5 of the project
### Contingency Planning

**Has the Council:**
- Developed contingency plans as necessary
- Included known non-compliant devices in the plans
- Made an assessment of potential unintended consequences
- Ensured the availability of key, and other staff, for significant dates
- Obtained sufficient stock of essential supplies

### Auditing the Process

**Has the Council**
- Audited the process on a continuing basis
- Documented the audit process
- Signed off on the audit process

Done
Resource list D

Useful References

Available from the LGA


Also check the LGA Internet site: http://www.lga.sa.gov.au

Available on the Internet

- Embedded Chips

- Millennium Bug Year 2000

- Personal Computers (PCs)

- Selecting a Year 2000 Consultant

- Year 2K industry program
  http://www.y2kregister.com.au

- Government Sites
  http://www.y2k.gov.au
  http://www.y2kbase.com

Other Publications
SA Government & Employers Chamber of Commerce, The Approach to Year 2000

There is also a Y2K hotline: 1800 11 2000