



0-5478-P1

**User Guide for the Advance Planning Risk Analysis
Tool for Transportation Projects**

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*Project 0-5478: Optimizing the Identification of Right-of-Way
Requirements during the Project Development
Process*

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Chapter 1. Overview of the APRA Tool

1.1 Introduction

This document is the User Guide for the Advance Planning Risk Analysis (APRA) computer tool (program), which was developed to help participants optimize the identification of requirements during the project development process through the analysis of risk elements. This document is a companion material to the Implementation Guide submitted to the Texas Department of Transportation (TxDOT) by the Center for Transportation Research (CTR) (*1*). Therefore, this User Guide should be used in close conjunction with the Implementation Guide. It is assumed that those using this User Guide are familiar with the APRA method, its implementation, and terminology as described in the Implementation Guide.

1.2 System Requirements

This computer tool was developed with the Microsoft Office Excel (Excel) platform using Visual Basic for Application (VBA), a programming language. Excel is probably the most widely used spreadsheet program, and VBA is a powerful language that can implement a wide variety of tasks in Excel. Any computer running Excel is capable of using this computer tool. This tool has been tested using two versions of Microsoft Office Excel, 2003 and 2007. The tool is, therefore, recommended to be used with a computer that has one of these two versions installed. No installation is required for this tool; a user just needs to copy the file containing the tool onto a computer.

1.3 Programming Structure

In this tool, all data are stored in eleven worksheets in an Excel file, as shown in Figure 1.1. The worksheets are:

- Element: contains information on all elements' descriptions and weighted scores corresponding to levels of definition;
- Subsection: contains a list of twelve categories of elements;
- Section: contains a list of three sections of elements;
- Attendance: contains data regarding variables used in the attendance sheet;
- Sheet 1: contains information on the steps involved in using the tool;
- Attendance Sheet: contains information on the attendance that users input;
- Final Score: contains information of the project's final score and the sections' scores;
- Section I: contains information on the Section I elements' levels of definition chosen by users;

- Section II: contains information on the Section II elements' levels of definition chosen by users;
- Section III: contains information on the Section III elements' levels of definition chosen by users;
- Low Definition: contains information on the list of elements that have low levels of definition (in other words, elements that have high risk).

	A	B	C	D	E	F	G	H	I	J	K	L
1	OID	toAttendance	ID	Name								
2	1		1 I	Basis of Project Decision								
3	2		1 II	Basis of Design								
4	3		1 III	Execution Approach								
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												

Figure 1.1 Worksheets of the APRA Tool

This tool's code was written in 9 Forms, 3 Modules, and 4 Class Modules as shown in Figure 1.2.

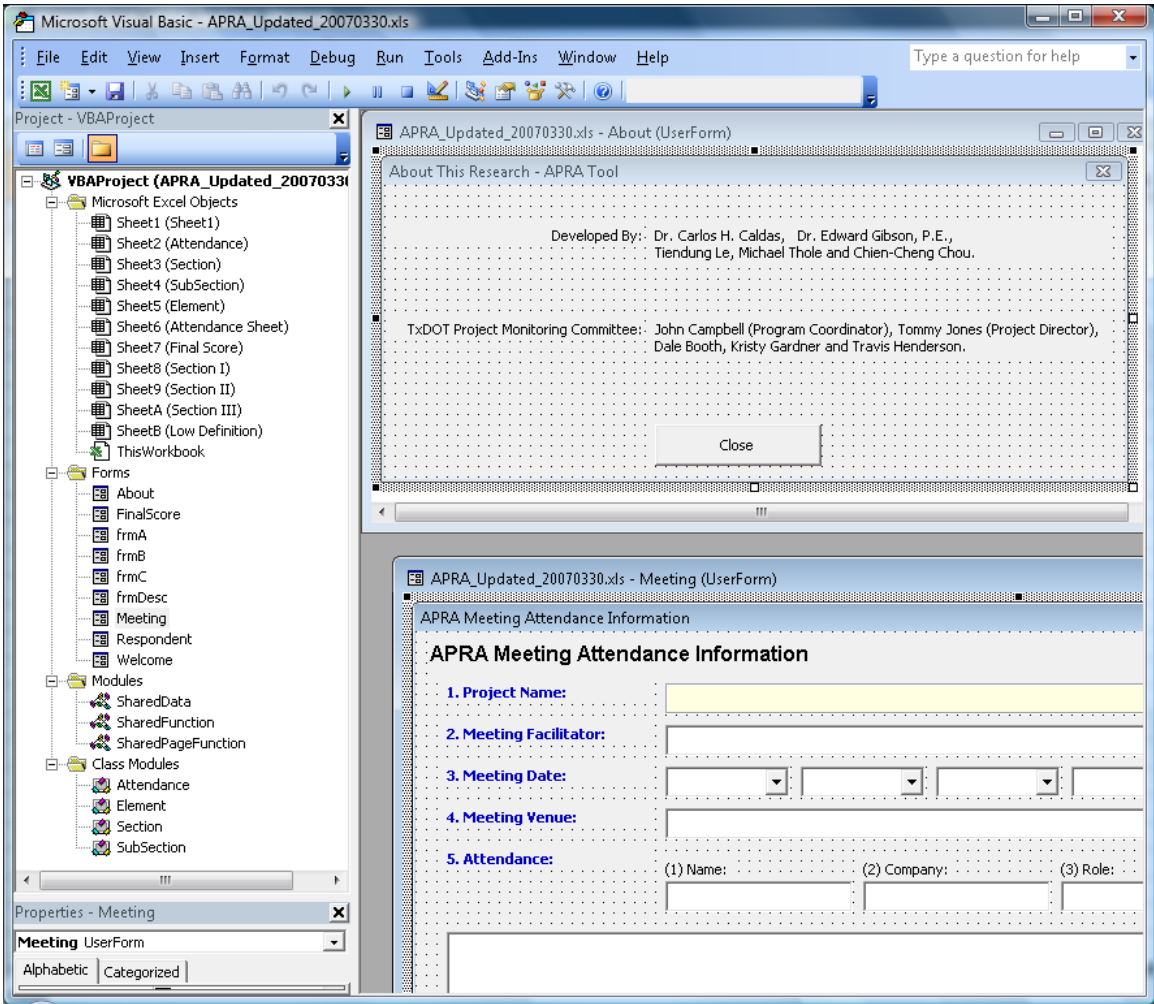


Figure 1.2 Programming Structure

Chapter 2. Starting to Use the APRA

2.1 Getting Started

Every time a new analysis is conducted, all previously input data will be overwritten by the newly input data. Thus, it is strongly recommended that the user make a separate copy of the program file each time an analysis is to be conducted.

Generally, there are two ways to start the APRA tool. The user can either double click on the computer file of the tool located in a computer or start Excel and then open the computer file using Excel's "Open" function. Originally this file was named "APRA.xls". The program will show the Welcome Screen, allowing the user to start using the tool. Details on how to start using Welcome Screen can be found in section 2.3 (Welcome Screen). The user may encounter a security issue if this is the first time the tool is run on the computer. Please refer to section 2.2 Security Level for details.

2.2 Security Level

If the Welcome Screen does not appear when the tool is started, a notice, as in Figure 2.1, may pop up. Click "OK," and then change the Security settings. In Excel 2003, go to the tool bar and select Tool → Macro → Security; the window shown in the screen capture in Figure 2.2 will pop up. In Excel 2007, click on the Microsoft Office icon at the top left corner of Excel, choose Excel Options, select Trust Center from the list on the left, choose "Trust Center Setting" on the right, and in the new window, choose Macro Settings from the list on the left, then select "Enable all macros" (not recommended; potentially dangerous code can run), as in Figure 2.3. Also in Excel 2007, if the file is open and there is a Security Warning, as in Figure 2.4, click on "Options" and a window as in Figure 2.5 will appear. In this case choose "Enable this content" and the Welcome Screen will appear.

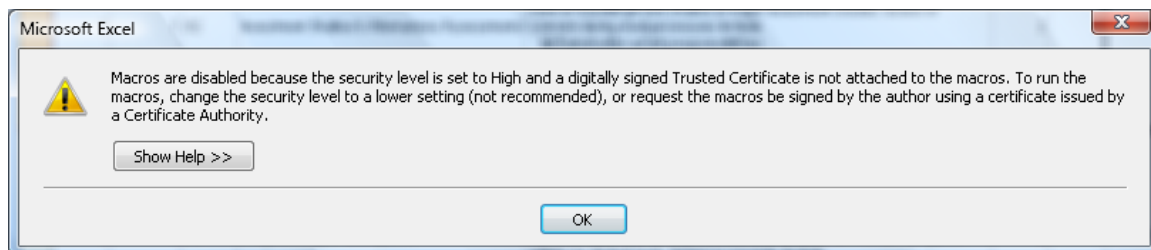


Figure 2.1 Security Notice

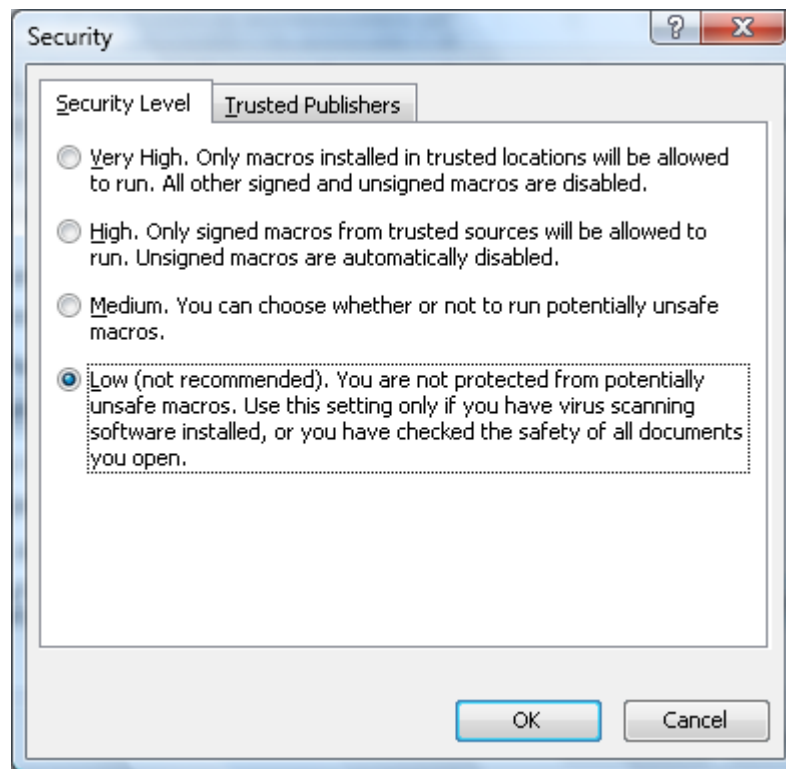


Figure 2.2 Security Level Settings

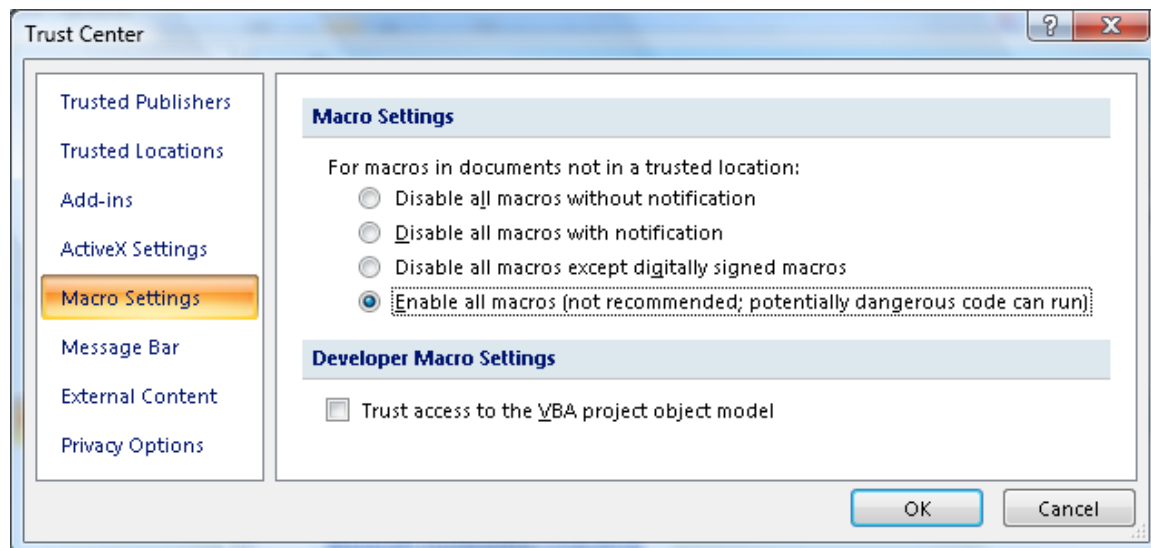


Figure 2.3 Macro Settings

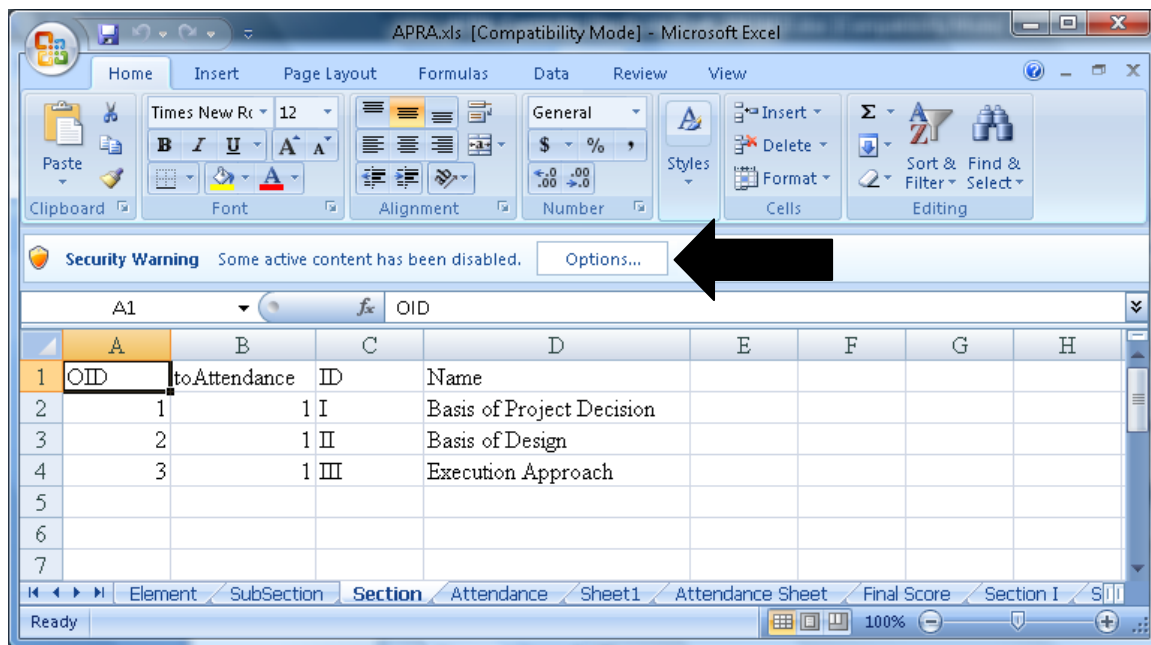


Figure 2.4 Security Warning



Figure 2.5 Security Alert – Macros & ActiveX

2.3 Welcome screen

The Welcome Screen offers six options for the user, shown in Figure 2.6. The options are as follows:

- Start New Analysis: this option allows the user to do a new analysis; details can be found in Chapter 3: “How to Do a New Analysis”;
- Review Previous Analysis: this option allows the user to review a previous analysis that was saved from an early use of the tool; details on how to review a previous analysis can be found in Chapter 4: “How to Review a Previous Analysis”;
- Save As...: this option allows the user to save the current file as a new file for a new analysis;
- About this Research: this option contains brief information on the research that developed the tool;
- View User Guide: this option links to the User Guide (this document) of this tool; this file is in PDF format and can be read by the Adobe Reader program, which is available for free from <http://www.adobe.com/>;
- Exit: this option allows the user to exit the tool; the user will have a chance to choose to save, not save, or cancel when Excel’s notice to this effect appears, as in Figure 2.7. If Cancel is selected, the user has to close the tool and open it again for the Welcome Screen to reappear.

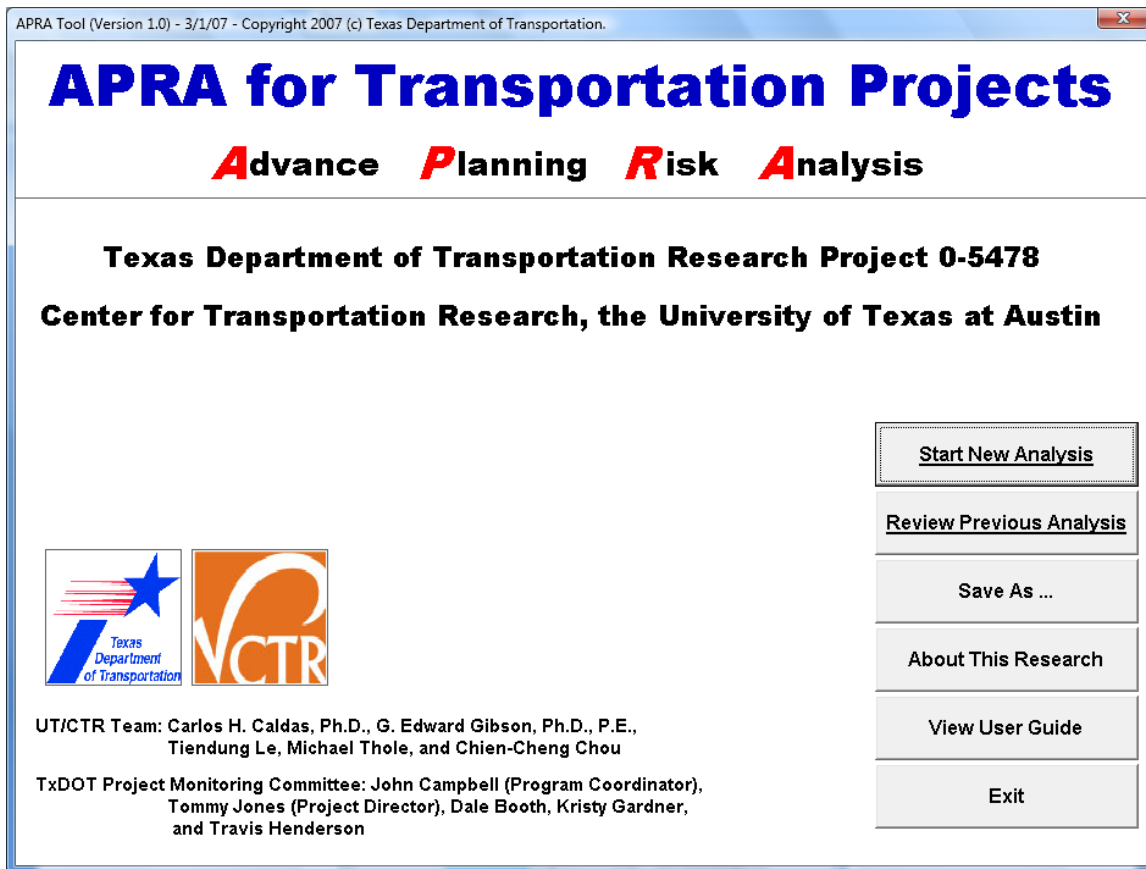


Figure 2.6 Welcome Screen

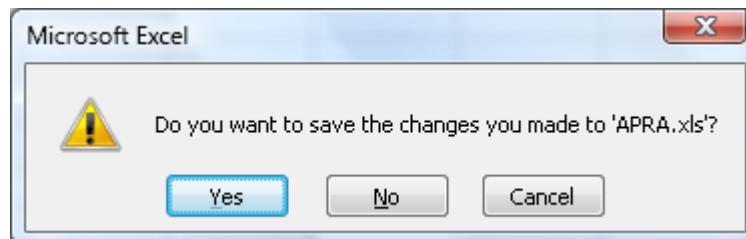


Figure 2.7 Saving Options

Chapter 3. How to Do a New Analysis

3.1 Starting a New Analysis

Every time a new analysis is conducted, all previously input data will be overwritten by the newly input data. Thus, it is strongly recommended that the user make a separate copy of the program file each time an analysis is to be conducted.

To start a new analysis using the APRA tool, select “Start New Analysis” from the Welcome Screen as shown in Figure 3.1.

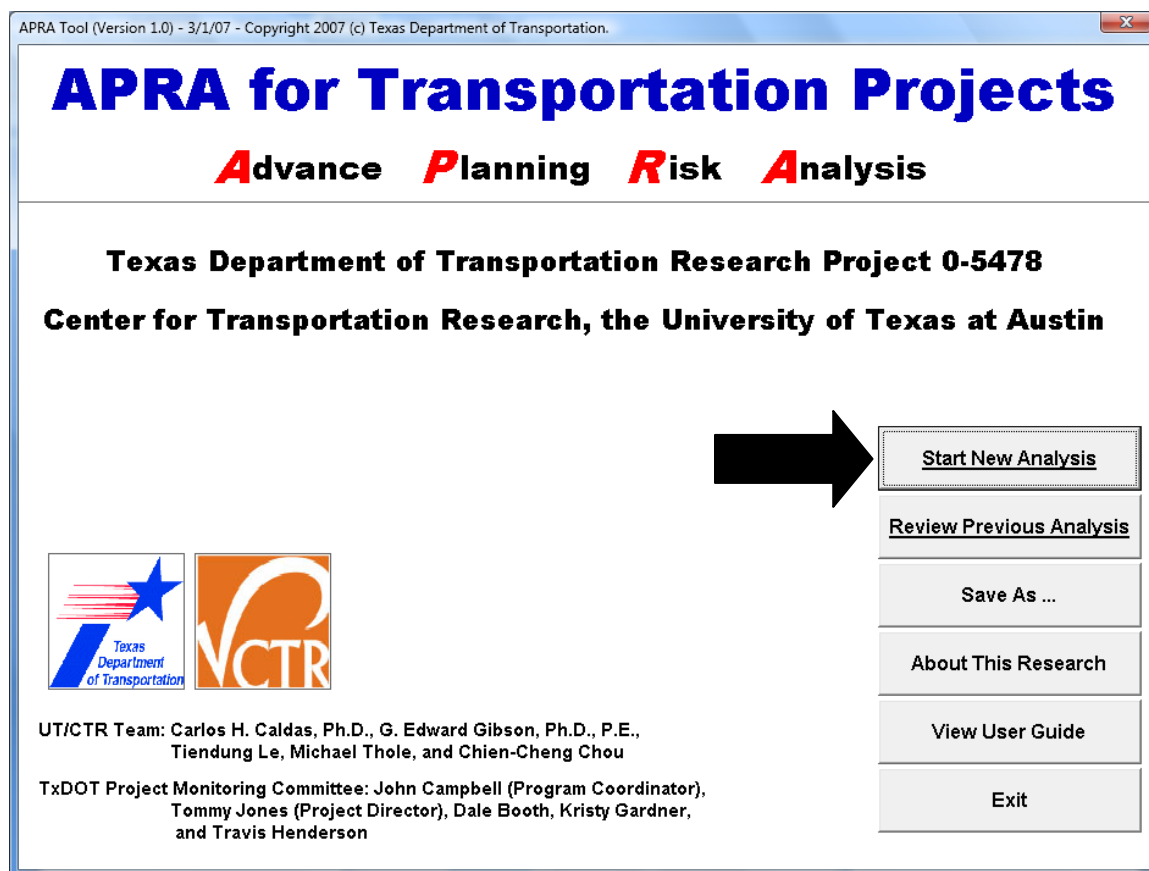


Figure 3.1 Start a New Analysis from Welcome Screen

3.2 Project Information

At the beginning of each analysis, the APRA Project Information screen is shown, as shown in Figure 3.2. On the column on the right are six steps in an analysis, and the current step is highlighted in blue. Each step is done using a corresponding page (screen). Within this screen, the user can input the project information, including the project name, manager, location, status, and any notes. After entering all relevant information, the user can move to the next page, Meeting Attendance, which is detailed in section 3.3., “Meeting Attendance Information.” An APRA Project Information screen with data is shown in Figure 3.3 as an example.

At the bottom of the screen are four buttons. Selecting “Previous Page” will bring the user back to the Welcome Screen. “Next Page” will take the user to the next step, Meeting Attendance. At any time the user can delete all data that have been inputted by clicking on “Delete All Data.” At any time, the user can save the input data by clicking on “Save” and exit the program by clicking on the “X” button at the top right corner.

APRA Project Information

APRA Project Information

1. Project Name:

2. Project Manager:

3. Project Location:

4. Project Status:

5. Notes:

Assessment Input Steps:

- Step
- Project Information
- Meeting Attendance
- Sec.I: Basis of Project Decision
- Sec.II: Basis of Design
- Sec.III: Execution Approach
- Final Score

Previous Page Next Page Delete All Data Save

Figure 3.2 APRA Project Information – Blank

APRA Project Information

1. Project Name: APRA Example

2. Project Manager: Tommy Jones

3. Project Location: The University of Texas at Austin

4. Project Status: Ongoing

5. Notes: This is not a real project. It is for the research purposes only. All information was made up.

Assessment Input Steps:

- Step
- Project Information**
- Meeting Attendance
- Sec.I: Basis of Project Decision
- Sec.II: Basis of Design
- Sec.III: Execution Approach
- Final Score

Previous Page Next Page Delete All Data Save

Figure 3.3 APRA Project Information – Example

3.3 Meeting Attendance Information

In the screen shown in Figure 3.4, the user can key in the information of the meeting in which the analysis is to be done. Information to be filled in includes the meeting facilitator, time and date, venue, and a list of attendees (with details available regarding name, company, and role in the company.) An example with data is shown in the screen in Figure 3.5.

On the right column there is also information about the six steps in an analysis; the current step is highlighted in blue. At the bottom of the screen (as shown in Figure 3.3) are three more buttons. The “Previous Page” button will bring up the previous step, the APRA Project Information. The “Next Page” button will bring up the next step, Section I: Basis of Project Decision. At any time, the user can save the input data by clicking on “Save” and exit the program by clicking on the “X” button at the top right corner.

APRA Meeting Attendance Information

APRA Meeting Attendance Information

1. Project Name:

2. Meeting Facilitator:

3. Meeting Date:
2007
August
24
09:00 AM
Now

4. Meeting Venue:

5. Attendance:

(1) Name:
(2) Company:
(3) Role:
Add
Remove

#	Name	Company	Role

Previous Page

Next Page

Save

Assessment Input Steps:

Step
Project Information
Meeting Attendance
Sec.I: Basis of Project Decision
Sec.II: Basis of Design
Sec.III: Execution Approach
Final Score

Figure 3.4 APRA Meeting Attendance Information – Blank

APRA Meeting Attendance Information

1. Project Name: APRA Example

2. Meeting Facilitator: Carlos H. Caldas

3. Meeting Date: 2007 August 24 09:00 AM Now

4. Meeting Venue: Austin, Texas

5. Attendance:

(1) Name: (2) Company: (3) Role: Add Remove

#	Name	Company	Role
1	Tommy Jones	TxDOT	Project Director
2	Kristy Gardner	TxDOT	PMC Member
3	Travis Henderson	TxDOT	PMC Member
4	Dale Booth	TxDOT	PMC Member

Assessment Input Steps:

Step
Project Information
Meeting Attendance
Sec.I: Basis of Project Decision
Sec.II: Basis of Design
Sec.III: Execution Approach
Final Score

Previous Page Next Page Save

Figure 3.5 APRA Meeting Attendance Information – Example

3.4 Assessing the Elements

In the screen shown in Figure 3.6, the user can enter the data for the definition level of each element in categories A, B, and C in section I. By default, all elements are set as “Not Applicable” (definition level of “zero.”) There are two ways to enter an element’s definition level, and they are:

1. The user can click on the pull-down menu indicated by the vertical arrow, as shown in Figure 3.6. A pull-down menu will pop up, as seen in Figure 3.7, for the user to select the level of definition. The score corresponding to the element’s level of definition will appear in a small box to the right of the menu (as shown in Figure 3.8.) Do this for each element. The selection of the definition level can be changed in the same way. An example with completed section I is shown in Figure 3.9.

Section I - Basis of Project Decision

Section I - Basis of Project Decision

Category Element	(Press here for element description)	Definition Level	Score
A. Project Strategy (Max. Score = 122)			
A1. Need & Purpose Documentation		0 = Not Applicable	0
A2. Investment Studies & Alternatives Assessments		0 = Not Applicable	0
A3. Programming & Funding Data		0 = Not Applicable	0
A4. Key Team Member Coordination		0 = Not Applicable	0
A5. Public Involvement		0 = Not Applicable	0
B. Owner/Operator Philosophies (Max. Score = 76)			
B1. Future Expansion & Alteration Considerations 1		0 = Not Applicable	0
B2. Operating Philosophy		0 = Not Applicable	0
B3. Maintenance Philosophy		0 = Not Applicable	0
B4. Future Expansion & Alteration Considerations		0 = Not Applicable	0
C. Project Requirements (Max. Score = 102)			
C1. Functional Classification & Use		0 = Not Applicable	0
C2. Evaluation of Compliance Requirements		0 = Not Applicable	0
C3. Survey of Existing Environmental Conditions		0 = Not Applicable	0
C4. Determination of Utility Impacts		0 = Not Applicable	0
C5. Value Engineering		0 = Not Applicable	0

Project Name:

Project Manager's Name:

Assessment Input Steps:

Step

Project Information

Meeting Attendance

Sec.I: Basis of Project Decision

Sec.II: Basis of Design

Sec.III: Execution Approach

Final Score

Section I Total:

0

Sec. I Max. Score:

0

Previous Page

Next Page

Save

Figure 3.6 APRA Element Assessment – Section I – Blank

Section I - Basis of Project Decision

Section I - Basis of Project Decision

Category Element	(Press here for element description)	Definition Level	Score
A. Project Strategy (Max. Score = 122)			
A1. Need & Purpose Documentation		3 = Some Deficiencies	12
A2. Investment Studies & Alternatives Assessments		0 = Not Applicable	0
A3. Programming & Funding Data		1 = Complete Definition	0
A4. Key Team Member Coordination		2 = Minor Deficiencies	0
A5. Public Involvement		3 = Some Deficiencies	0
		4 = Major Deficiencies	0
		5 = Incomplete or Poor Def	0
B. Owner/Operator Philosophies (Max. Score = 76)			
B1. Future Expansion & Alteration Considerations 1		0 = Not Applicable	0
B2. Operating Philosophy		0 = Not Applicable	0
B3. Maintenance Philosophy		0 = Not Applicable	0
B4. Future Expansion & Alteration Considerations		0 = Not Applicable	0
C. Project Requirements (Max. Score = 102)			
C1. Functional Classification & Use		0 = Not Applicable	0
C2. Evaluation of Compliance Requirements		0 = Not Applicable	0
C3. Survey of Existing Environmental Conditions		0 = Not Applicable	0
C4. Determination of Utility Impacts		0 = Not Applicable	0
C5. Value Engineering		0 = Not Applicable	0

Project Name:

Project Manager's Name:

Assessment Input Steps:

Step

Project Information

Meeting Attendance

Section I: Basis of Project Decision

Sec. II: Basis of Design

Sec. III: Execution Approach

Final Score

Section I Total: 12

Sec. I Max. Score: 23

Previous Page

Next Page

Save

Figure 3.7 Select a Definition Level for an APRA Element

Section I - Basis of Project Decision

Category Element	(Press here for element description)	Definition Level	
A. Project Strategy (Max. Score = 122)			
A1. Need & Purpose Documentation		3 = Some Deficiencies	12
A2. Investment Studies & Alternatives Assessments		0 = Not Applicable	0
A3. Programming & Funding Data		0 = Not Applicable	0
A4. Key Team Member Coordination		0 = Not Applicable	0
A5. Public Involvement		0 = Not Applicable	0
B. Owner/Operator Philosophies (Max. Score = 76)			
B1. Future Expansion & Alteration Considerations 1		0 = Not Applicable	0
B2. Operating Philosophy		0 = Not Applicable	0
B3. Maintenance Philosophy		0 = Not Applicable	0
B4. Future Expansion & Alteration Considerations		0 = Not Applicable	0
C. Project Requirements (Max. Score = 102)			
C1. Functional Classification & Use		0 = Not Applicable	0
C2. Evaluation of Compliance Requirements		0 = Not Applicable	0
C3. Survey of Existing Environmental Conditions		0 = Not Applicable	0
C4. Determination of Utility Impacts		0 = Not Applicable	0
C5. Value Engineering		0 = Not Applicable	0

Project Name:

Project Manager's Name:

Assessment Input Steps:

Step

Project Information

Meeting Attendance

Sec. I: Basis of Project Decision

Sec. II: Basis of Design

Sec. III: Execution Approach

Final Score

Section I Total: 12

Sec. I Max. Score: 23

Previous Page Next Page Save

Figure 3.8 Select a Definition Level for an APRA Element – Results

Section I - Basis of Project Decision

Category Element	(Press here for element description)	Definition Level	Score
A. Project Strategy (Max. Score = 122)			
A1. Need & Purpose Documentation		1 = Complete Definition	1
A2. Investment Studies & Alternatives Assessments		1 = Complete Definition	2
A3. Programming & Funding Data		3 = Some Deficiencies	16
A4. Key Team Member Coordination		2 = Minor Deficiencies	6
A5. Public Involvement		2 = Minor Deficiencies	7
B. Owner/Operator Philosophies (Max. Score = 76)			
B1. Design Philosophy		1 = Complete Definition	1
B2. Operating Philosophy		2 = Minor Deficiencies	5
B3. Maintenance Philosophy		2 = Minor Deficiencies	5
B4. Future Expansion & Alteration Considerations		4 = Major Deficiencies	15
C. Project Requirements (Max. Score = 102)			
C1. Functional Classification & Use		1 = Complete Definition	1
C2. Evaluation of Compliance Requirements		2 = Minor Deficiencies	6
C3. Survey of Existing Environmental Conditions		3 = Some Deficiencies	14
C4. Determination of Utility Impacts		3 = Some Deficiencies	16
C5. Value Engineering		1 = Complete Definition	1

Project Name: APRA Example
Project Manager's Name: Tommy Jones

Assessment Input Steps:

Step
Project Information
Meeting Attendance
Sec. I: Basis of Project Decision
Sec. II: Basis of Design
Sec. III: Execution Approach
Final Score

Section I Total: 96
Sec. I Max. Score: 300

Previous Page Next Page Save

Figure 3.9 APRA Element Assessment – Section I – Example

- The user can click on the grey square button indicated by the horizontal arrow in Figure 3.6. A window as shown in Figure 3.10 will appear. With this window, the user can select the definition level at the bottom of the window. The user can: 1) move to the next element by clicking “Next Element”, 2) move to the previous element by clicking “Previous Element”, or 3) close this window to move to the window as shown in Figure 3.4. All selections of the definition level are recorded by the tool and the element’s score will appear once the user closes this window.

More Information: A. Project Strategy

A1. Need & Purpose Documentation

The need for a project may be identified in many ways, including suggestions from maintenance supervisors, area engineers, transportation planners, local elected officials, developers, and the public. This process typically includes site visits, seeking input from individuals with relevant knowledge. Documentation should result, assessing the need and purpose of a potential project based on factual evidence of current and future conditions. This documentation must consider how the project will address previously determined problems and inefficiencies, in language that is understandable to the general public. It will eventually serve as the basis for identifying, comparing, and selecting alternatives. Issues may include:

- ☐ Project scope and definition
- ☐ Community concerns and critical issues
- ☐ Consultation with local public officials regarding supportive legislation
- ☐ Multi-modal alternatives and inter-modal relationships
- ☐ Current operational/maintenance inefficiencies and high costs
- ☐ Current and future economic development needs
- ☐ Adjacent properties and transportation facilities
- ☐ Site visits and interviews
- ☐ Capacity improvement needs:
 - ☐ Existing levels of service
 - ☐ Traffic modeling of future travel demands
 - ☐ Trend analysis and forecasted growth
- ☐ Safety improvement needs:
 - ☐ Accident frequency and severity
 - ☐ Conformance with current geometric standards
 - ☐ Pavement and bridge structure conditions
 - ☐ Other

TxDOT Requirements:

- ☐ "Need & Purpose Statement"

Definition Level:

N/A	High		Low		
0	1	2	3	4	5

Previous Element Next Element Close

Figure 3.10 APRA Element Description

On the right hand side column there is also information on the six steps in an analysis; the current step is highlighted in blue. At the bottom are three buttons. The “Previous Page” will bring up the previous step. The “Next Page” will bring up the next step. “Save” will save all data that has been input. At any time, the user can exit the program by clicking on the “X” button at the top right corner.

After Section I is completed, hit the button labeled “Next Page” to move to the next step, Section II (as in Figure 3.11.) This step should be finished in a similar fashion as Section I. Similarly, move to Section III (Figure 3.13) by clicking on “Next Page” after finishing Section II. Figures 3.12 and 3.14 show examples of sections II and III with input data.

Section II - Basis of Design

Category
Element

(Press here for
element description)

Definition Level

Score

D. Site Information (Max. Score = 173)

D1. Geotechnical Characteristics

0 = Not Applicable

0

D2. Hydrological Characteristics

0 = Not Applicable

0

D3. Surveys & Planimetrics

0 = Not Applicable

0

D4. Permitting Requirements

0 = Not Applicable

0

D5. Environmental Documentation

0 = Not Applicable

0

D6. Property Descriptions

0 = Not Applicable

0

D7. Ownership Determinations

0 = Not Applicable

0

D8. Right-of-Way Mapping

0 = Not Applicable

0

D9. Constraints Mapping

0 = Not Applicable

0

D10. Right-of-Way Site Issues

0 = Not Applicable

0

E. Location & Geometry (Max. Score = 79)

E1. Horizontal & Vertical Alignment

0 = Not Applicable

0

E2. Control of Access

0 = Not Applicable

0

E3. Schematic Layouts

0 = Not Applicable

0

E4. Cross-Sectional Elements

0 = Not Applicable

0

F. Structures (Max. Score = 48)

F1. Bridge Structure Elements

0 = Not Applicable

0

F2. Hydraulic Structures

0 = Not Applicable

0

F3. Miscellaneous Design Elements

0 = Not Applicable

0

G. Design Parameters (Max. Score = 29)

G1. Provisional Maintenance Requirements

0 = Not Applicable

0

G2. Constructability

0 = Not Applicable

0

H. Installed Equipment (Max. Score = 30)

H1. Equipment List

0 = Not Applicable

0

H2. Equipment Location Drawings

0 = Not Applicable

0

H3. Equipment Utility Requirements

0 = Not Applicable

0

Previous Page

Next Page

Save

Project Name:

Project Manager's Name:

Assessment Input Steps:

Step

Project Information

Meeting Attendance

Sec. I: Basis of Project Decision

Sec. II: Basis of Design

Sec. III: Execution Approach

Final Score

Section II Total:

0

Sec. II Max. Score:

0

Figure 3.11 APRA Element Assessment – Section II – Blank

Section II - Basis of Design

Category

Element

(Press here for element description)

Definition Level

Score

D. Site Information (Max. Score = 173)			
D1. Geotechnical Characteristics	2 = Minor Deficiencies	5	
D2. Hydrological Characteristics	3 = Some Deficiencies	10	
D3. Surveys & Planimetrics	1 = Complete Definition	1	
D4. Permitting Requirements	2 = Minor Deficiencies	5	
D5. Environmental Documentation	2 = Minor Deficiencies	7	
D6. Property Descriptions	2 = Minor Deficiencies	5	
D7. Ownership Determinations	2 = Minor Deficiencies	4	
D8. Right-of-Way Mapping	3 = Some Deficiencies	9	
D9. Constraints Mapping	5 = Incomplete or Poor I	19	
D10. Right-of-Way Site Issues	4 = Major Deficiencies	15	
E. Location & Geometry (Max. Score = 79)			
E1. Horizontal & Vertical Alignment	2 = Minor Deficiencies	6	
E2. Control of Access	3 = Some Deficiencies	9	
E3. Schematic Layouts	2 = Minor Deficiencies	8	
E4. Cross-Sectional Elements	2 = Minor Deficiencies	5	
F. Structures (Max. Score = 48)			
F1. Bridge Structure Elements	3 = Some Deficiencies	9	
F2. Hydraulic Structures	3 = Some Deficiencies	10	
F3. Miscellaneous Design Elements	2 = Minor Deficiencies	4	
G. Design Parameters (Max. Score = 29)			
G1. Provisional Maintenance Requirements	3 = Some Deficiencies	6	
G2. Constructability	1 = Complete Definition	1	
H. Installed Equipment (Max. Score = 30)			
H1. Equipment List	2 = Minor Deficiencies	3	
H2. Equipment Location Drawings	3 = Some Deficiencies	5	
H3. Equipment Utility Requirements	3 = Some Deficiencies	7	

Previous Page

Next Page

Save

Project Name:

APRA Example

Project Manager's Name:

Tommy Jones

Assessment Input Steps:

Step

Project Information

Meeting Attendance

Sec. I: Basis of Project Decision

Sec. II: Basis of Design

Sec. III: Execution Approach

Final Score

Section II Total:

153

Sec. II Max. Score:

359

Figure 3.12 APRA Element Assessment – Section II – Example

Section III - Execution Approach

Section III - Execution Approach

Category Element	(Press here for element description)	Definition Level	Score
I. Acquisition Strategy (Max. Score = 137)			
I1. Long-Lead Parcel & Utility Adjustment Identification		0 = Not Applicable	0
I2. Long-Lead/Critical Equipment & Materials Identification		0 = Not Applicable	0
I3. Local Public Agencies Utilities Contracts & Agreements		0 = Not Applicable	0
I4. Utility Agreement & Joint-Use Contracts		0 = Not Applicable	0
I5. Project Delivery Method & Contracting Strategies		0 = Not Applicable	0
I6. Design/Construction Plan & Approach		0 = Not Applicable	0
I7. Procurement Procedures & Plans		0 = Not Applicable	0
I8. Appraisal Requirements		0 = Not Applicable	0
I9. Advance Acquisition Requirements		0 = Not Applicable	0
J. Deliverables (Max. Score = 23)			
J1. CADD/Model Requirements		0 = Not Applicable	0
J2. Documentation/Deliverables		0 = Not Applicable	0
K. Project Control (Max. Score = 98)			
K1. Right-of-Way & Utilities Cost Estimates		0 = Not Applicable	0
K2. Design & Construction Cost Estimate		0 = Not Applicable	0
K3. Project Cost Control		0 = Not Applicable	0
K4. Project Schedule Control		0 = Not Applicable	0
K5. Project Quality Assurance & Control		0 = Not Applicable	0
K6. Safety Procedures		0 = Not Applicable	0
L. Project Execution Plan (Max. Score = 83)			
L1. Environmental Commitments & Mitigation		0 = Not Applicable	0
L2. Interagency Coordination		0 = Not Applicable	0
L3. Local Public Agency Contractual Agreements		0 = Not Applicable	0
L4. Interagency Joint-Use Agreements		0 = Not Applicable	0
L5. Preliminary Traffic Control Plan		0 = Not Applicable	0
L6. Substantial Completion Requirements		0 = Not Applicable	0

Project Name:

Project Manager's Name:

Assessment Input Steps:

Step

Project Information

Meeting Attendance

Sec. I: Basis of Project Decision

Sec. II: Basis of Design

Sec. III: Execution Approach

Final Score

Section III Total:

0

Sec. III Max. Score:

0

Previous Page

Next Page

Save

Figure 3.13 APRA Element Assessment – Section III – Blank

Section III - Execution Approach

Category Element	(Press here for element description)	Definition Level	Score
I. Acquisition Strategy (Max. Score = 137)			
I1. Long-Lead Parcel & Utility Adjustment Identification		3 = Some Deficiencies	13
I2. Long-Lead/Critical Equipment & Materials Identification		1 = Complete Definition	1
I3. Local Public Agencies Utilities Contracts & Agreements		2 = Minor Deficiencies	6
I4. Utility Agreement & Joint-Use Contracts		3 = Some Deficiencies	11
I5. Project Delivery Method & Contracting Strategies		1 = Complete Definition	1
I6. Design/Construction Plan & Approach		1 = Complete Definition	1
I7. Procurement Procedures & Plans		1 = Complete Definition	1
I8. Appraisal Requirements		2 = Minor Deficiencies	4
I9. Advance Acquisition Requirements		2 = Minor Deficiencies	4
J. Deliverables (Max. Score = 23)			
J1. CADD/Model Requirements		1 = Complete Definition	1
J2. Documentation/Deliverables		1 = Complete Definition	1
K. Project Control (Max. Score = 98)			
K1. Right-of-Way & Utilities Cost Estimates		3 = Some Deficiencies	12
K2. Design & Construction Cost Estimates		3 = Some Deficiencies	12
K3. Project Cost Control		2 = Minor Deficiencies	5
K4. Project Schedule Control		2 = Minor Deficiencies	5
K5. Project Quality Assurance & Control		2 = Minor Deficiencies	3
K6. Safety Procedures		2 = Minor Deficiencies	4
L. Project Execution Plan (Max. Score = 83)			
L1. Environmental Commitments & Mitigation		3 = Some Deficiencies	8
L2. Interagency Coordination		2 = Minor Deficiencies	5
L3. Local Public Agency Contractual Agreements		3 = Some Deficiencies	8
L4. Interagency Joint-Use Agreements		2 = Minor Deficiencies	4
L5. Preliminary Traffic Control Plan		3 = Some Deficiencies	7
L6. Substantial Completion Requirements		4 = Major Deficiencies	9

Project Name: APRA Example
Project Manager's Name: Tommy Jones

Assessment Input Steps:
Step
Project Information
Meeting Attendance
Sec. I: Basis of Project Decision
Sec. II: Basis of Design
Sec. III: Execution Approach
Final Score

Section III Total: 126
Sec. III Max. Score: 341

Previous Page Next Page Save

Figure 3.14 APRA Element Assessment – Section III – Example

Each section's total score and its corresponding maximum score are shown at the right bottom corner of the screens in Figures 3.6, 3.7, 3.8, 3.9, 3.11, 3.12, 3.13, and 3.14. The section total score is the result of summing up scores of all the elements in that section, and it is dependent upon the selection of levels of definition. The section's maximum score is the highest score that the section can have; a section has its highest score when all elements, excluding those non-applicable to the project, have the definition level of 5. Those elements that are not applicable to the project have definition levels of "zero;" they do not contribute to the section's total score or maximum score.

When Section III is completed, click "Next Page" to move to the Final Score screen, which is shown in Figure 3.15.

3.5 Analysis Summary

The screen in Figure 3.15 shows the summary of the results of the analysis. It contains some information on the project and the meeting. Total and maximum scores and percentage (ratio of total and maximum scores) of three sections and the project are displayed. The project's maximum score will be lower than 1,000 points if the project has element(s) that is (are) not applicable.

APRA Final Score

APRA Final Score:

1. Project Name: APRA Example

2. Facilitator: Carlos H. Caldas

3. Project Manager: Tommy Jones

4. Date: 8/24/2007

Overall:

	Score	Maximum Score	Percentage
Section I:	96	300	32.0%
Section II:	153	359	42.6%
Section II:	126	341	37.0%
Total:	375	1000	37.5%

High-Risk Items:

Section	Level	Score
B4. Future Expansion & Alteration Considerations	4	15
D9. Constraints Mapping	5	19
D10. Right-of-Way Site Issues	4	15
L6. Substantial Completion Requirements	4	9

Assessment Input Steps:

Step

Project Information

Meeting Attendance

Sec.I: Basis of Project Decision

Sec.II: Basis of Design

Sec.III: Execution Approach

Final Score

Previous Page View Reports Print All Reports Save Save As ...

Figure 3.16 APRA Element Assessment – Summary Screen – Example

3.6 Analysis Reports

After generating all reports, the program will notify the user, as shown in Figure 3.17. Click “OK” to see the reports. Six reports are generated and presented in the form of Excel sheets, as shown in Figures 3.19, 3.20, 3.21, 3.22, 3.23, and 3.24. From each of these sheets, the user can return to the tool by clicking on “Return to Tool” button as indicated by the arrows in the figures mentioned above.

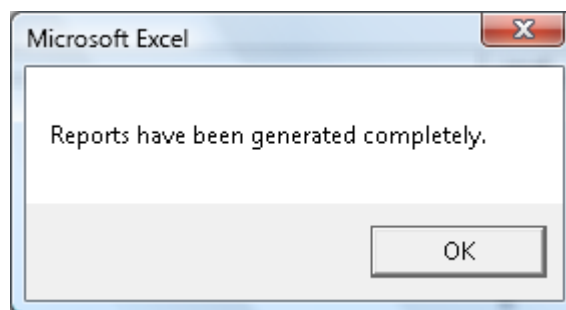


Figure 3.17 Successful Reports Generation Notice

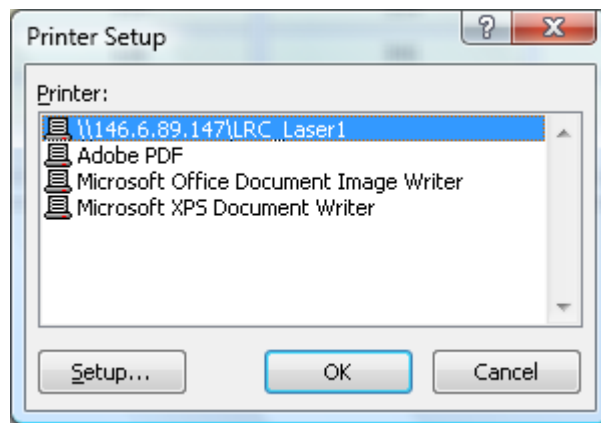


Figure 3.18 Select Printer

The reports are explained in more detail in the following pages.

1. Attendance Sheet

“Attendance” sheet, as shown in Figure 3.19, provides information about the meeting attendees, including their names, company affiliation, and roles. Basic information on the project and the meeting such as project name, meeting facilitator, meeting location, and meeting date are also included.

The user can print this sheet, save the analysis, save the analysis as another file, and exit the analysis using Excel’s “Print,” “Save,” “Save As,” and “Exit” functions, respectively. The user can return to the tool by clicking on the “Return to Tool” button, as indicated by the arrows as shown in Figure 3.19. The user can also browse around other sheets by clicking on each of them.

The screenshot shows the Microsoft Excel interface with the 'APRA Attendance Sheet' open. The ribbon at the top includes Home, Insert, Page Layout, Formulas, Data, Review, and View. The sheet contains the following information:

APRA ATTENDANCE SHEET		
Project:	APRA Example	Date: 8/24/2007
Facilitator:	Carlos H. Caldas	
Location:	The University of Texas at Austin	
Name	Company	Role
1 Tommy Jones	TxDOT	Project Director
2 Kristy Gardner	TxDOT	PMC
3 Travis Henderson	TxDOT	PMC
4 Dale Booth	TxDOT	PMC
5		
6		
7		
8		
9		
10		

On the right side of the sheet, there is a vertical grey bar with a button labeled 'Return to Tool' and a large black arrow pointing upwards towards it.

Figure 3.19 APRA Analysis Report – Attendance Sheet

2. APRA Overall Scores

The sheet shown in Figure 3.20 reports on the overall scores of the project and sections in addition to basic information on the project and the meeting. The sections' and project's total and maximum scores are listed. A normalized score, which corresponds to a 1,000-point scale, is also calculated and presented.

The user can print this sheet, save the analysis, save the analysis as another file, and exit the analysis using Excel's "Print," "Save," "Save As," and "Exit" functions, respectively. The user can return to the tool by clicking on the "Return to Tool" button as indicated by the arrow as shown in Figure 3.20. The user can also browse around other sheets by clicking on each of them.

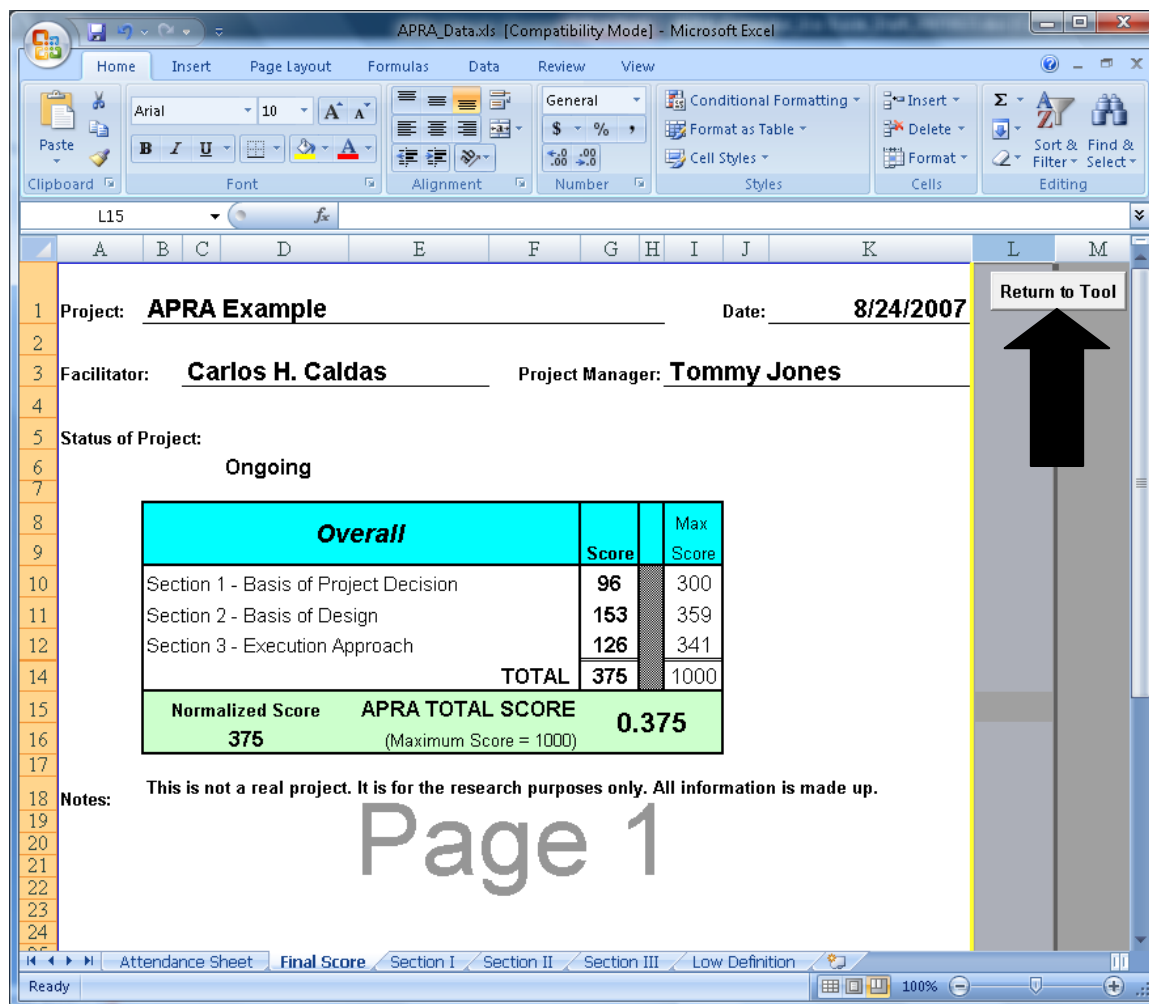


Figure 3.20 APRA Analysis Report – Overall Scores

3. Elements in Sections I, II, and III and Their Scores

The sheets, as shown in Figures 3.21, 3.22, and 3.23, report on the details of the elements' assessments, each figure for each section. For each element, information on the definition level, score, and maximum is displayed in the corresponding row. Total and maximum scores of each category and section are also calculated and presented in the sheets.

The user can print these sheets, save the analysis, save the analysis as another file, and exit the analysis using Excel's "Print," "Save," "Save As," and "Exit" functions, respectively. The user can return to the tool by clicking on the "Return to Tool" button as indicated by the arrows as shown in Figures 3.21, 3.22, and 3.23. The user can also browse around other sheets by clicking on each of them.

APRA_Data.xls [Compatibility Mode] - Microsoft Excel

Home Insert Page Layout Formulas Data Review View

Clipboard Font Alignment Number Styles Cells Editing

C11 2

Project: APRA Example Date: 8/24/2007

SECTION I - BASIS OF PROJECT DECISION

CATEGORY	Definition Level						Level	Score	Max Score
Element	0	1	2	3	4	5			
A. PROJECT STRATEGY (Maximum Score = 122)									
A1. Need & Purpose Documentation	0	1	7	12	18	23	1	1	23
A2. Investment Studies & Alternatives Assessments	0	2	8	14	19	25	1	2	25
A3. Programming & Funding Data	0	2	9	16	23	30	3	16	30
A4. Key Team Member Coordination	0	1	6	11	16	21	2	6	21
A5. Public Involvement	0	2	7	13	18	23	2	7	23
CATEGORY A TOTAL								32	122
B. OWNER/OPERATOR PHILOSOPHIES (Maximum Score = 76)									
B1. Design Philosophy	0	1	7	12	18	23	1	1	23
B2. Operating Philosophy	0	1	5	10	14	18	2	5	18
B3. Maintenance Philosophy	0	1	5	9	12	16	2	5	16
B4. Future Expansion & Alteration Considerations	0	2	6	11	15	19	4	15	19
CATEGORY B TOTAL								26	76
C. PROJECT REQUIREMENTS (Maximum Score = 102)									
C1. Functional Classification & Use	0	1	5	8	12	15	1	1	15
C2. Evaluation of Compliance Requirements	0	1	6	10	15	19	2	6	19
C3. Survey of Existing Environmental Conditions	0	2	8	14	20	26	3	14	26
C4. Determination of Utility Impacts	0	2	9	16	23	30	3	16	30
C5. Value Engineering	0	1	4	7	9	12	1	1	12
CATEGORY C TOTAL								38	102
Section I Maximum Score = 200								96	200

Return to Tool

Page

Attendance Sheet Final Score Section I Section II Section III Low Definition

Ready 100%

Figure 3.21 APRA Analysis Report – Section I Elements

APRA_Data.xls [Compatibility Mode] - Microsoft Excel

Home Insert Page Layout Formulas Data Review View

Clipboard Font Alignment Number Styles Cells Editing

C12 1

Project: APRA Example Date: 8/24/2007

SECTION II - BASIS OF DESIGN

CATEGORY	Definition Level						Level	Score	Max Score
Element	0	1	2	3	4	5			
D. SITE INFORMATION (Maximum Score = 173)									
D1. Geotechnical Characteristics	0	1	5	9	12	16	2	5	16
D2. Hydrological Characteristics	0	1	5	10	14	18	3	10	18
D3. Surveys & Planimetrics	0	1	5	10	14	18	1	1	18
D4. Permitting Requirements	0	1	5	9	13	17	2	5	17
D5. Environmental Documentation	0	2	7	12	17	22	2	7	22
D6. Property Descriptions	0	1	5	8	12	15	2	5	15
D7. Ownership Determinations	0	1	4	7	10	13	2	4	13
D8. Right-of-Way Mapping	0	1	5	9	12	16	3	9	16
D9. Constraints Mapping	0	1	6	10	15	19	5	19	19
D10. Right-of-Way Site Issues	0	1	6	10	15	19	4	15	19
CATEGORY D TOTAL								80	173
E. LOCATION & GEOMETRY (Maximum Score = 79)									
E1. Horizontal & Vertical Alignment	0	1	6	11	15	20	2	6	20
E2. Control of Access	0	1	5	9	13	17	3	9	17
E3. Schematic Layouts	0	2	8	13	19	24	2	8	24
E4. Cross-Sectional Elements	0	1	5	10	14	18	2	5	18
CATEGORY E TOTAL								28	79
F. STRUCTURES (Maximum Score = 48)									
F1. Bridge Structure Elements	0	1	5	9	12	16	3	9	16

Return Tool

Page

Ready

Attendance Sheet Final Score Section I Section II Section III Low Definition

100%

Figure 3.22 APRA Analysis Report – Section II Elements

APRA_Data.xls [Compatibility Mode] - Microsoft Excel

Home Insert Page Layout Formulas Data Review View

Clipboard Font Alignment Number Styles Cells Editing

L32

Project: APRA Example Date: 8/24/2007

SECTION III - EXECUTION APPROACH

CATEGORY	Definition Level						Level	Score	Max Score
Element	0	1	2	3	4	5			
I. ACQUISITION STRATEGY (Maximum Score = 137)									
I1. Long-Lead Parcel & Utility Adjustment Identification	0	2	8	13	19	24	3	13	24
I2. Long-Lead/Critical Equipment & Materials Identification	0	1	4	7	9	12	1	1	12
I3. Local Public Agencies Utilities Contracts & Agreements	0	1	6	10	15	19	2	6	19
I4. Utility Agreement & Joint-Use Contracts	0	1	6	11	15	20	3	11	20
I5. Project Delivery Method & Contracting Strategies	0	1	4	7	10	13	1	1	13
I6. Design/Construction Plan & Approach	0	1	4	8	11	14	1	1	14
I7. Procurement Procedures & Plans	0	1	3	6	8	10	1	1	10
I8. Appraisal Requirements	0	1	4	8	11	14	2	4	14
I9. Advance Acquisition Requirements	0	1	4	6	9	11	2	4	11
CATEGORY I TOTAL							42	137	
J. DELIVERABLES (Maximum Score = 23)									
J1. CADD/Model Requirements	0	1	3	6	8	10	1	1	10
J2. Documentation/Deliverables	0	1	4	7	10	13	1	1	13
CATEGORY J TOTAL							2	23	
K. PROJECT CONTROL (Maximum Score = 98)									
K1. Right-of-Way & Utilities Cost Estimates	0	2	7	12	16	21	3	12	21
K2. Design & Construction Cost Estimates	0	2	7	12	16	21	3	12	21
K3. Project Cost Control	0	1	5	9	13	17	2	5	17
K4. Project Schedule Control	0	1	5	9	12	16	2	5	16

Return to Tool

Page 1

Attendance Sheet Final Score Section I Section II Section III Low Definition

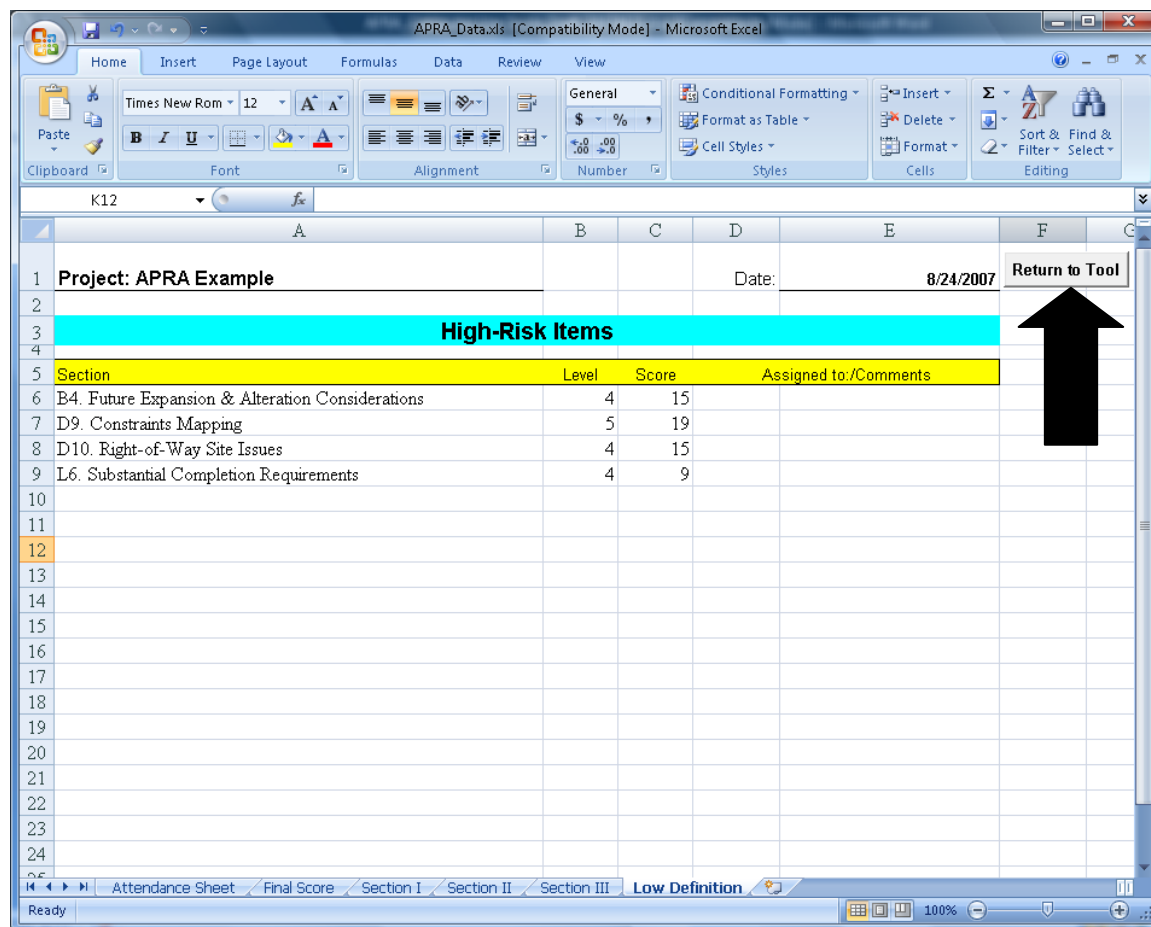
Ready 100%

Figure 3.23 APRA Analysis Report – Section III Elements

4. High Risk Elements

The “High Risk” sheet as shown in Figure 3.24 reports on the list of high risk elements as a result of the analysis. All elements with definition levels of four and five are listed. The user can add any comments on each of these elements using the column named “Assigned to:/Comments.”

The user can print this sheet, save the analysis, save the analysis as another file, and exit the analysis using Excel’s “Print,” “Save,” “Save As,” and “Exit” functions, respectively. The user can return to the tool by clicking on the “Return to Tool” button as indicated by the arrow as shown in Figure 3.24. The user can also browse around other sheets by clicking on each of them.



Section	Level	Score	Assigned to:/Comments
B4. Future Expansion & Alteration Considerations	4	15	
D9. Constraints Mapping	5	19	
D10. Right-of-Way Site Issues	4	15	
L6. Substantial Completion Requirements	4	9	

Figure 3.24 APRA Analysis Report – High Risk Elements

Chapter 4. How to Review a Previous Analysis

To review a previous analysis using the APRA tool, select “Review Previous Analysis” from the Welcome Screen as shown in Figure 4.1. The program will show all data that have been saved from a previous analysis. All of them can be modified in the same way as when starting a new analysis. All newly input data will overwrite the data input in the previous analysis. For details of how to use the tool after choosing “Review Previous Analysis,” please refer to sections 3.2 to 3.6 in Chapter 3.

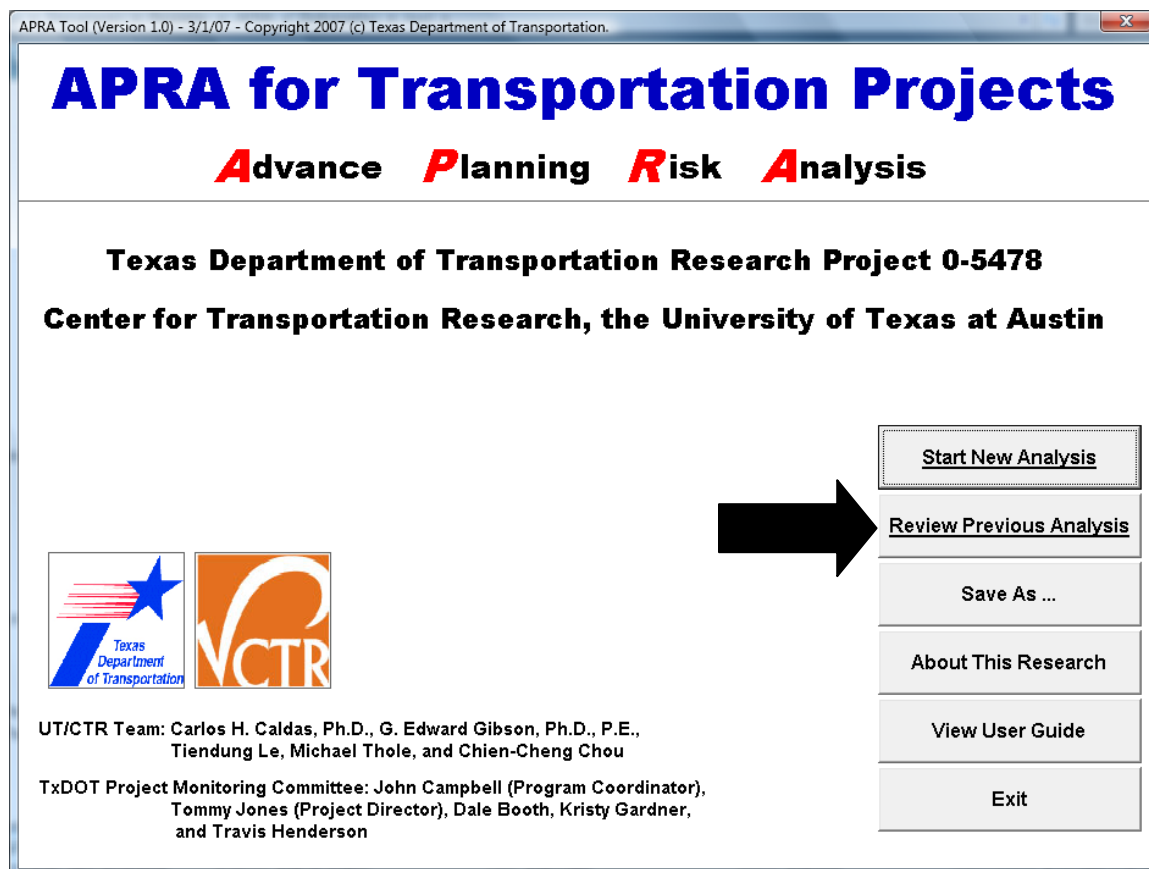


Figure 4.1 Review a Previous Analysis from Welcome Screen

4.1.1 References

1. Caldas, C. H., Gibson, G. E., and Le, T. *TxDOT Best Practices Model and Implementation Guide for Advance Planning Risk Analysis for Transportation Projects*. Report 0-5478-P2 to Texas Department of Transportation, Austin, Texas, August 2007.
2. Caldas, C. H., Gibson, G. E., and Le, T. *Optimizing the Identification of Right-of-Way Requirements during the Project Development Process Report*. Report 0-5478-1 to Texas Department of Transportation, Austin, Texas, October 2007.
3. Construction Industry Institute. *Project Definition Rating Index, Industrial Projects*. Second Edition, Implementation Resource 113-2, the Construction Industry Institute, Austin, Texas, 2006.
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