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All software is programmed in XML, maintained on a NT server located at CTR Red River, and accessed via a redirect through the University Unix URL above.



*Rigid Pavement Design and Analysis Web-Based Training Site
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Overview

This website offers training for six computer programs pertaining mainly to the design and analysis of rigid pavements. The programs are: CRCP9, CRCP10, JRCP6, PavePro, RPLCCA, and TxPTS (includes ACP as an option). Each program will be discussed in the sections that follow.

For each program, you may:

- Take a series of training modules, ranging from how to input data into the program to how to interpret the output,
- Download the actual program to your PC after successfully completing the training, and
- Keep a record of where you were in the training so that you may return at a later time and resume where you left off.

System Requirements

To run the training programs, you'll need only:

- A recent version of either the MS Internet Explorer or Netscape web browser,
- An open internet connection

Online Training

TxDOT

User name was not found. Please try again.

Welcome to CTR's training site for pavement engineering software applications. If you have already created an account, please login below. Otherwise, please [create a new account](#).

Login

User Name: Terry
Password: *****
Login

Password Problems

If you have forgotten your password, it can be e-mailed to you.

User Name: _____
E-mail Password

In the event that your e-mail address is no longer valid, please [contact the Web site administrator](#) to reset your password. Please include your user name in the e-mail.

1 First create a new account and password
2 Log in with your account
3 Forgot Password? No problem

You'll need a user name and password so the program can keep track of your progress and start up where you left off last time. Also, after completing a module you'll be able to download updated versions of the programs at any time.

TxPTS

The Texas Pavement Type Selection program allows a user to compare several paving strategies and ranks them according to their cost effectiveness. It is a similar program to the RPLCCA program discussed above, but takes fewer costs into account and thus requires fewer user inputs. The performance models used are less complicated than those included in RPLCCA, and do not address specific distresses. However, TxPTS includes flexible pavements for new construction whereas RPLCCA only allows flexible overlays over rigid pavements. Like RPLCCA, TxPTS primarily uses life cycle cost analysis to rank the various strategies under consideration.

It is recommended that the interested user take the training modules on both programs to determine which one is more appropriate for their design situation.

Main Entry (Ctrl+S, Shift+S) (Setup Cost Data)

Project Information Flexible Pavement Data Rigid Pavement Data Delay Cost Data Output Report

Workzone Data

Base View ADT (Both Dir) (veh/d) 10000 Approach Speed (mph) 110
Trucks (%) 75 Capacity Speed (mph) 80
Annual Traffic Growth (%) 1 Workzone Length (mi) 1
Lane Capacity (veh/hft) 1000 Unit Delay Cost (\$/veh-hr) 75
Unit Delay Cost Truck (\$/veh-hr) 75

Workzone Methodology

Lane Closure in One Direction Lane Closure in Both Directions

Southbound Directional Traffic Data **Northbound Directional Traffic Data**

Directional Distribution (%) (%)
No. of Open Lanes 2 2
Workzone Speed (mph) 10 10
V/C Active From (Hr) 0 To (Hr) 24 V/C Active From (Hr) 0 To (Hr) 24

Hourly Traffic Distribution

Hour 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

Check Sum (Should be 1000) 1000

Main Entry (Ctrl+S, Shift+S) (Outputs & Reports)

Project Information Flexible Pavement Data Rigid Pavement Data Delay Cost Data Output Report

Calculate Outputs

Description	Initial Agency Cost (\$)	Annual Agency LCC (\$)	Annual Total LCC (\$)	Cost (Agg) Effect Index	Cost (Trk) Effect Index
Sample	1000000	100000	1100000	1.0	1.0
1	1000000	100000	1100000	1.0	1.0

Reports

Strategies Ranking Criteria: Initial Agency Cost (\$), Annual Agency LCC (\$), Annual Total LCC (\$), Cost (Agg) Effect Index, Cost (Trk) Effect Index

Flexible Pavement Strategies Data: 2m Cycle and Routine Maintenance, Performance and Duration Data, Materials Quantity Data, Materials Unit Cost Data

Rigid Pavement Strategies Data: 2m Cycle and Routine Maintenance, Performance and Duration Data, Materials Quantity Data, Materials Unit Cost Data

Print

TxPTS has an extensive section for considering work zone and delay costs

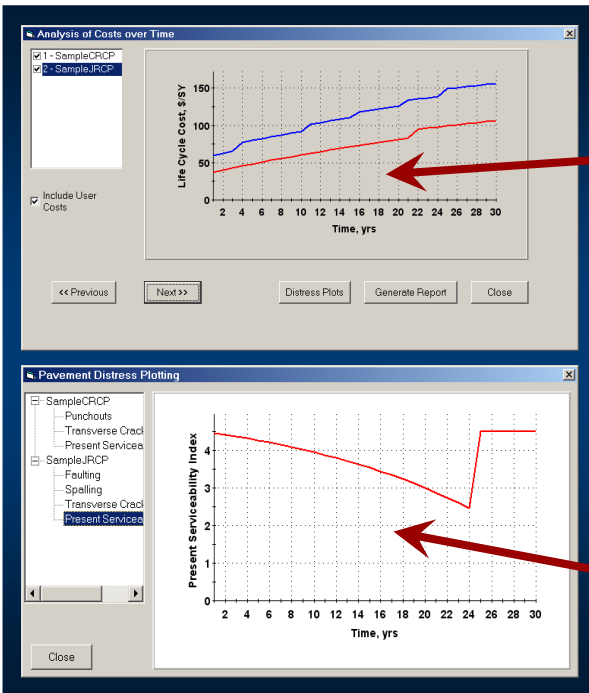
TxPTS allows new construction to include either rigid or flexible pavement

Alternative strategies are ranked by various cost considerations and presented on a single screen where they may be interactively prioritized as desired.

RPLCCA

This program is a MS Windows-based software program to perform Rigid Pavement Life Cycle Cost Analysis. The purpose of the program is to allow direct comparisons of all costs associated with several design and rehabilitation strategies over the life of the pavement, so that the most cost-effective option can be selected. The program includes performance prediction models so that the rate of distress development characteristic to each type of pavement can be factored into the analysis.

Because the program attempts to include all costs associated with a strategy, a large number of inputs are required not only pertaining to material properties but including such difficult to determine factors as traffic growth, vehicle operating costs, emissions, accidents, etc. In every case the program will attempt to provide reasonable default values that can be overridden by the user when better data is available.

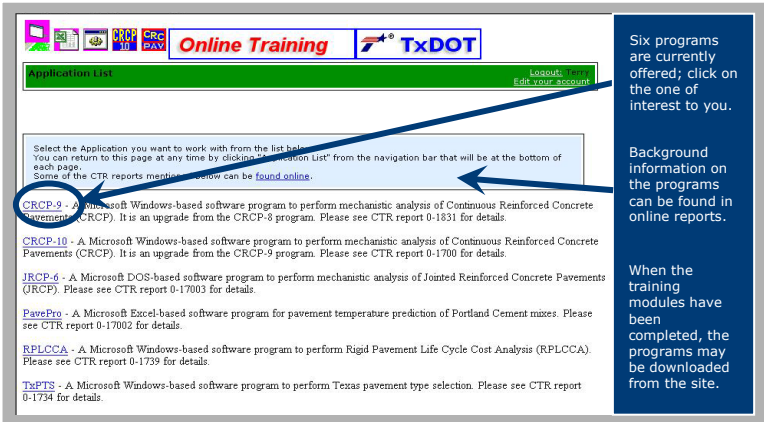


RPLCCA compares the total costs associated with each alternative design over the lifetime of the pavement to find the true cost of a strategy

RPLCCA includes various rehabilitation options as well as distress models

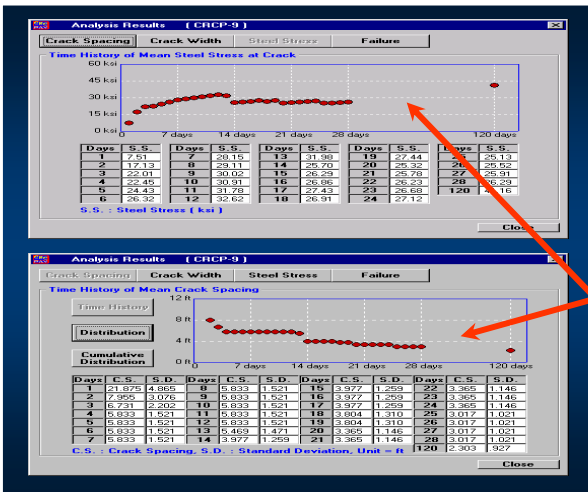
For each pavement type considered, the user may view a predicted history of distress

Once you’ve logged in, you can choose from a list of programs to train on. You can also access extensive online literature about the programs from this screen.



CRCP-9 & CRCP-10

The CRCP programs assist the user in evaluating a proposed design for continuously reinforced concrete pavement. Inputs include design parameters, environmental and traffic loading stresses, and material properties. The program predicts crack spacing, crack width, steel stress, and rate of punchout development.



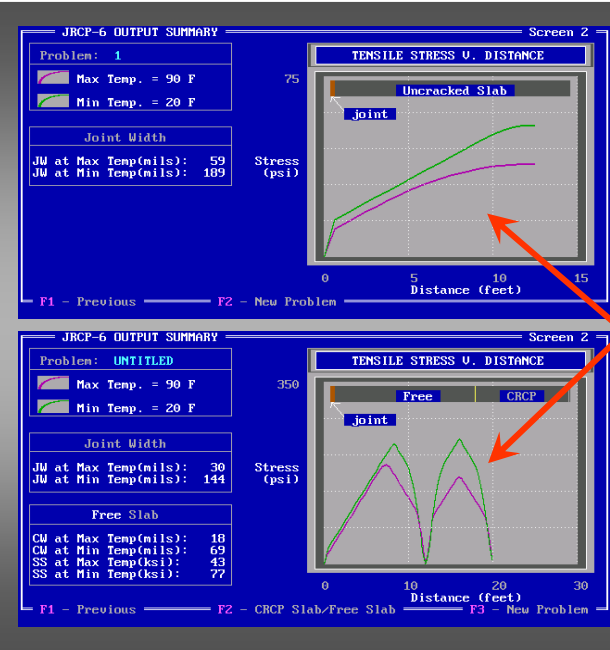
The training modules show how to input a design into the CRCP programs, how to run the programs, and how to interpret the output

The sample graphs on the left show predicted crack spacing and steel stress with time for a proposed CRC pavement design

CRCP9 and CRCP10 differ only in that CRCP10 takes into account dynamic wheel loading. If dynamic loading is not a factor, CRCP9 is recommended since it is slightly less complicated to use and gives the same results.

JRCP-6

The *JRCP Version 6.0* software is an analysis program for jointed reinforced pavement. JRCP predicts the stresses on a user-defined pavement. The user enters data such as reinforcement type, amount of reinforcement, environmental conditions, and concrete properties. *JRCP-6* may also be used to predict the stresses on jointed pavement that has no reinforcement. To do this, simply enter a small number (0.01, for example) for the **Percent Reinforcement** option on Screen 3 of the JRCP inputs.



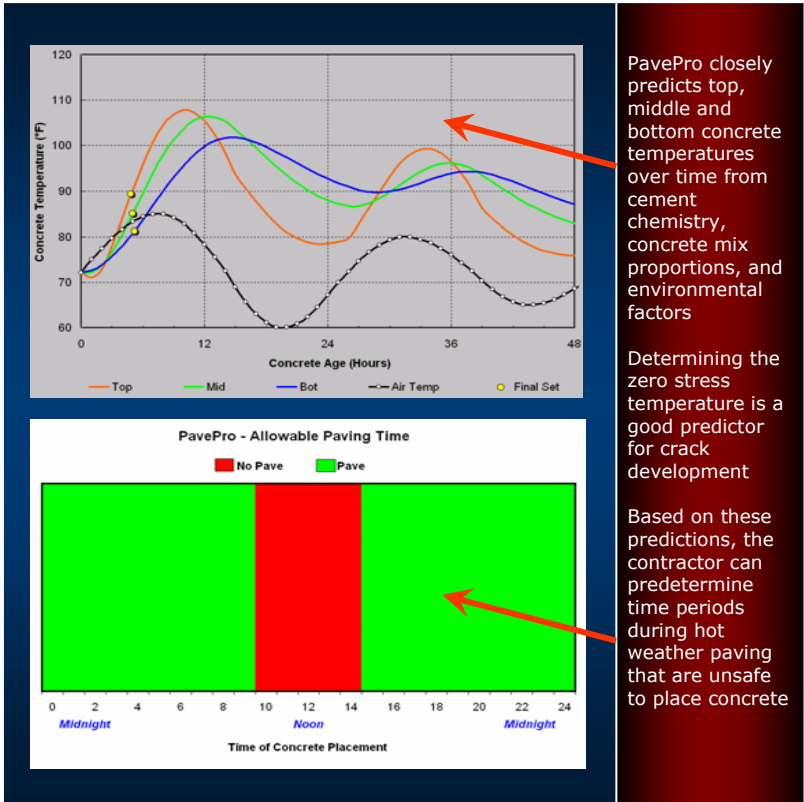
JRCP-6 can be used to simulate plain jointed or jointed reinforced concrete pavement, or even CRCP pavements in the transverse direction

No crack, one crack, and two crack modes are handled

Outputs include joint and crack opening at min and max temperature, and steel stress if reinforced

Pave Pro

The **PavePro** system was developed to assist in the management of temperature in newly-placed Portland cement concrete pavements. Given general, mix design, materials, environmental, and construction inputs, the system can predict the temperature within and below a concrete pavement slab. The system calculates and plots the average concrete temperature over the first 48 hours, and the temperature profile through the concrete slab and into the subbase during the first 36 hours after placement.



PavePro closely predicts top, middle and bottom concrete temperatures over time from cement chemistry, concrete mix proportions, and environmental factors

Determining the zero stress temperature is a good predictor for crack development

Based on these predictions, the contractor can predetermine time periods during hot weather paving that are unsafe to place concrete