Webmenus Proof of Concept Research Project

KnowledgeBase
Consulting Group

Introduction

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President

KnowledgeBase Consulting Group

Company History

➢ Formed in 1998

➢ Arizona based company

➢ Focused on DOT and Utility industry clients:

　　➢ LDOTD - Louisiana

　　➢ NMDOT – New Mexico

　　➢ ADOT - Arizona

　　➢ UDOT - Utah

　　➢ KDOT - Kansas

　　➢ Palo Verde Nuclear Generating Station

Company Offerings

➤ Experience:

  ➤ Analysis = Feasibility studies, ROI, Assessments

  ➤ Development = programming, CADD standards, etc.

  ➤ Implementation = ProjectWise, AutoCAD and MicroStation deployment, custom applications

  ➤ Documentation = Training manuals, CADD Standards manuals, Workflow documentation

  ➤ Training = ProjectWise, MicroStation, AutoCAD

  ➤ Support = on-site & remote support, deployment coaching

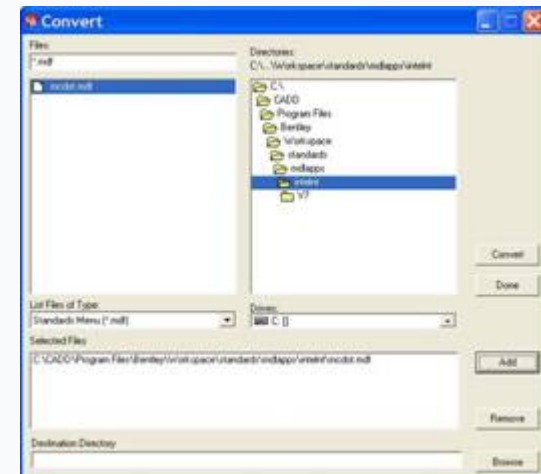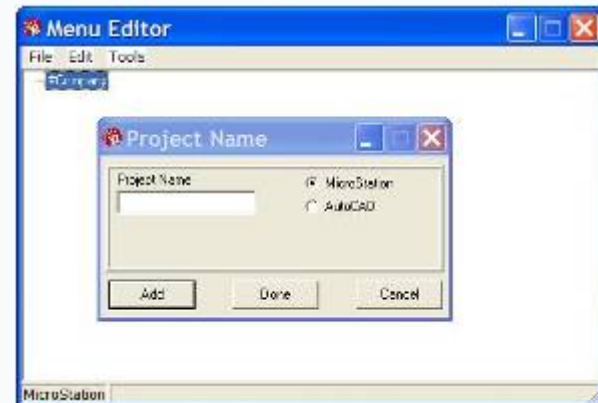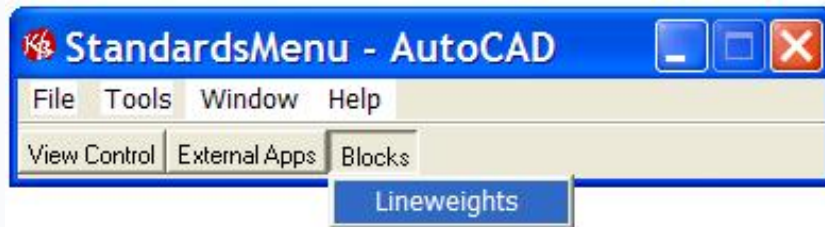# Company Products

➢ Training Material:
  ➢ ProjectWise XM User
  ➢ ProjectWise XM Administrator
  ➢ ProjectWise v8i User
  ➢ ProjectWise v8i Administrator
  ➢ Microstation XM Update

Company Products

➢ Software Solutions:

    ➢ StandardsMenu 1.0

        ➢ MicroStation or AutoCAD

Presentation Focus

CADD Menus

Research Department – Research Project

Introduction to CADD Menu

Getting Started

Who is familiar with what a CADD Menus is?

Getting Started

Who has ever used MicroStation or AutoCAD?

Getting Started

Who has ever Managed CADD Menus?

What is a CADD Menu?

A menubar or menu system used to invoke or force commands within the CADD system
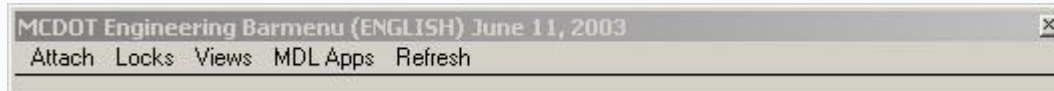
CADD system = MicroStation or AutoCAD

Bar Menu History

Bill Steinbock (Bentley) developed a barmenu application to easily populate a menu with user specific fields driven from an ASCII text

MCDOT Engineering Barmenu (ENGLISH) June 11, 2003
Attach Locks Views MDL Apps Refresh

Bar Menu Makeup

➢ MDL = MicroStation Development Language
➢ barmenu.ma

MCDOT Engineering Barmenu (ENGLISH) June 11, 2003   ⊠
Attach   Locks   Views   MDL Apps   Refresh

Bar Menu Makeup

➤ Compiled code files = **barmenu.mc** including other code file

Bar Menu Makeup

➢ Ascii Text file **DOT.mdf** containing pulldown menu definitions

Sample DOT Menus

New Mexico – MCDOT – Mississippi DOT
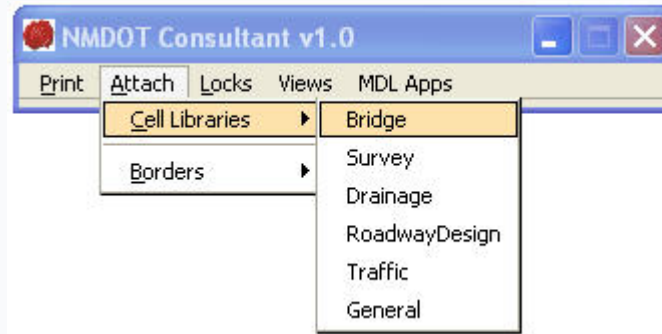
The Use of CADD Menus in DOT's

➢ To simplify CADD standards compliance

    ➢ ByLevel/Layer control

    ➢ Cell Library loading

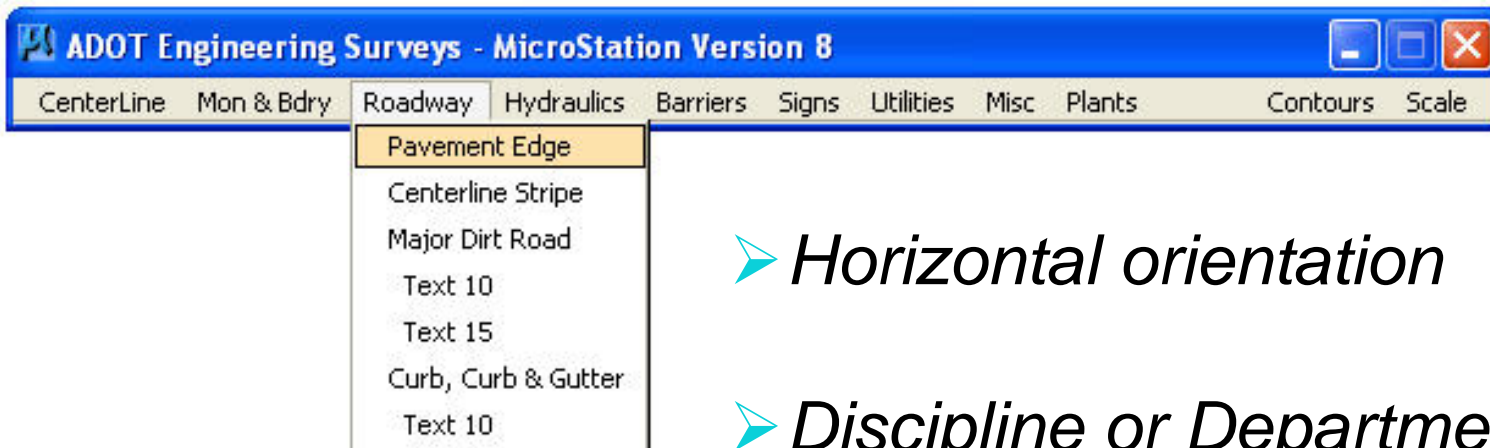   ➢ Custom program loading

    ➢ Etc.

The Use of CADD Menus in DOT's

➢ To disseminate agency CADD standards to consultants

➢ To enable custom automated programs necessary for DOT standardization

➢ Simplify and standardize agency menu's
  ➢ Familiarity with agency menu

Typical CADD Menu makeup

ADOT Engineering Surveys - MicroStation Version 8

CenterLine | Mon & Bdry | Roadway | Hydraulics | Barriers | Signs | Utilities | Misc | Plants | Contours | Scale

- Pavement Edge
- Centerline Stripe
- Major Dirt Road
- Text 10
- Text 15
- Curb, Curb & Gutter
- Text 10

➢ *Horizontal orientation*

➢ *Discipline or Departmentally segregated*

➢ *Pulldown menus*

➢ *Text Description*

CADD Menu technology

➢ Bentley Menus = MDL, MVBA

➢ AutoCAD = LISP

➢ Client application driven

  ➢ *MDL or LISP menus are typically run locally or within an organizations LAN*

➢ *Compiling source code is required*

Research Project

Why Research?

➢ *Evaluate and Test first*
➢ *Determine if it can or cannot be done?*
➢ *Compare options first*
  ➢ *OTS = Off the Shelf solutions*
  ➢ *Custom solution developed externally*
  ➢ *Custom solution developed internally*
➢ *Build consensus within staff and management*
➢ *Utilize Federal technology transfer funding*

Research Makes Sense

- ➤ *Current climate of State funding shortfalls*
- ➤ *Typical Research agency funding surpasses $1,000,000 of federal research $$$*
- ➤ *State contribution matching (10% in some cases)*
- ➤ *Use it or lose it*
- ➤ *Research projects make way for Technology Transfers (purchasing of software or development)*

Who can utilize Research?

- ➢ *Contact your research department*
- ➢ *Typically Department heads or Bureau Chiefs must sponsor*
- ➢ *Board approval*
- ➢ *RFP process*
- ➢ *Sole Source*
- ➢ *Educational research selection (LSU, etc.)*

Research Problem Statement

"DOT is adversely challenged with effectively supporting and maintaining internally and externally distributed CADD Standard Menu's"

Why the Challenge?

Reasons:

➢ *Multiple copies of menus (too numerous to determine)*

➢ *Proprietary code structure, MDL, MVBA, Macros (No in-house experienced MDL, MVBA programmers)*

➢ *Multiple installed CADD versions requiring version compiled menu's (MicroStation v7, 8.5 2004, XM, and v8i)*

Project Purpose

"To create a single (1) proof of concept CADD menu that is Web-based"

Project Objective

➢ *Utilize industry standard code structures*
➢ *Must be DOT maintainable*
➢ *Must be cost effective to implement and maintain*

What is a CADD Webmenu?

"An internet web-based menu system used to distribute CADD standard commands"
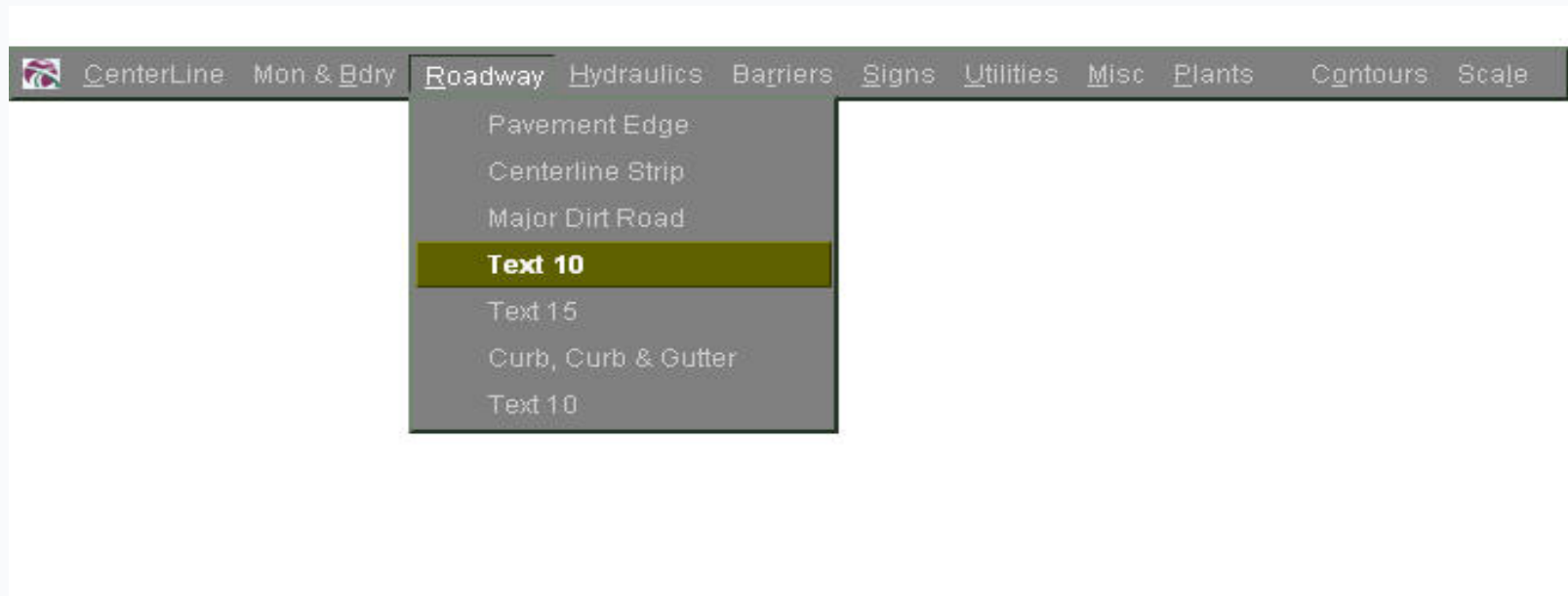
Functional Specifications

➢ Menu to look and function similar to the current CADD menu

➢ All updates to the menu will be in one location in order to reduce Administrative overhead

Current Menu
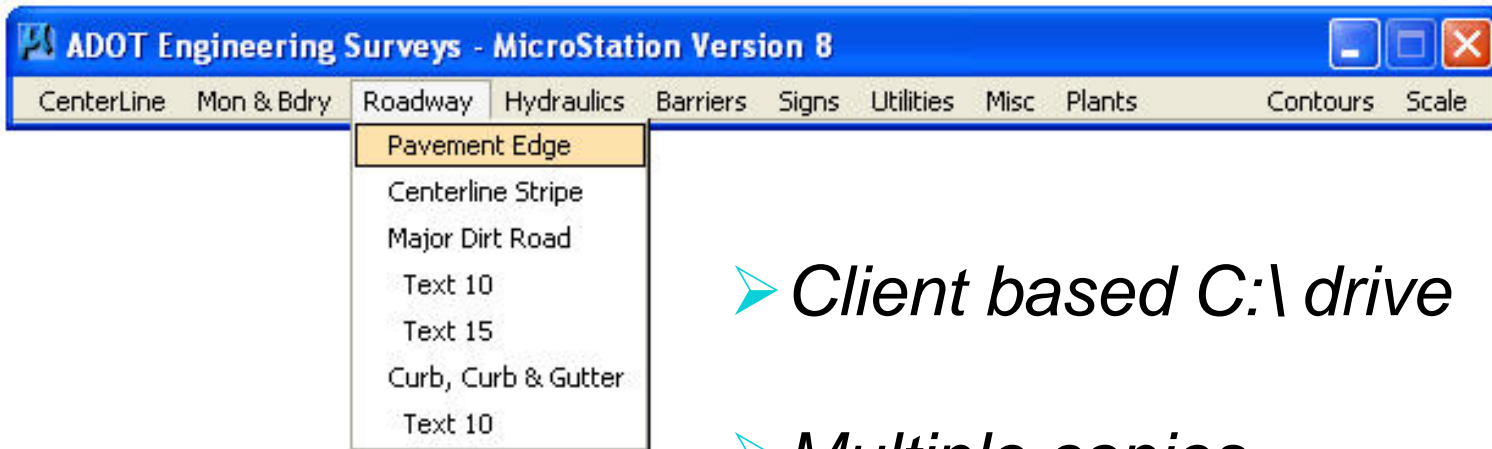
➤ *Client based C:\ drive*

➤ *Multiple copies*

➤ *Proprietary code structure*

➤ *CADD version specific*

Proof of Concept
CADD Webmenu

File Locations/Functionality

- CADD Standards files store on the DOT Webserver
  - Cell libraries
  - Font resource files
  - Custom Linestyles
- Files are downloaded (back end) at request via menu item
- Configurations are set "on the fly" when necessary

Network Architecture

ADOT Webmenus system architecture chart
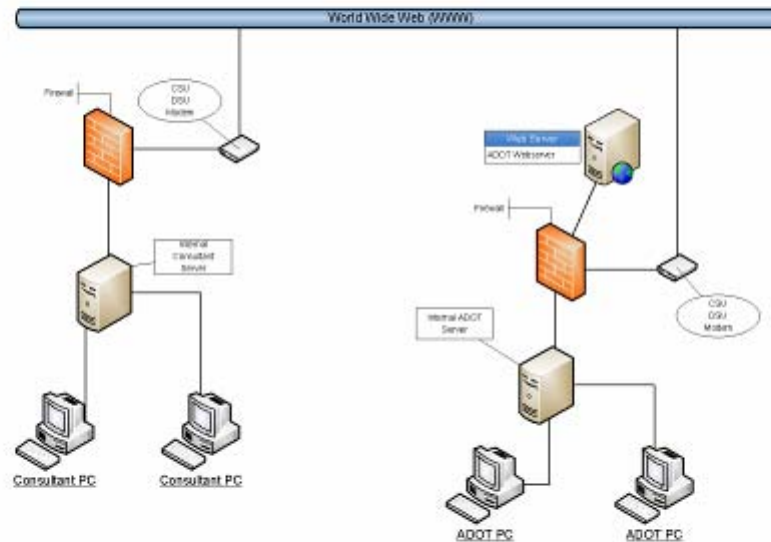
Process Chart

ADOT CADD Webmenus Process Workflow Chart
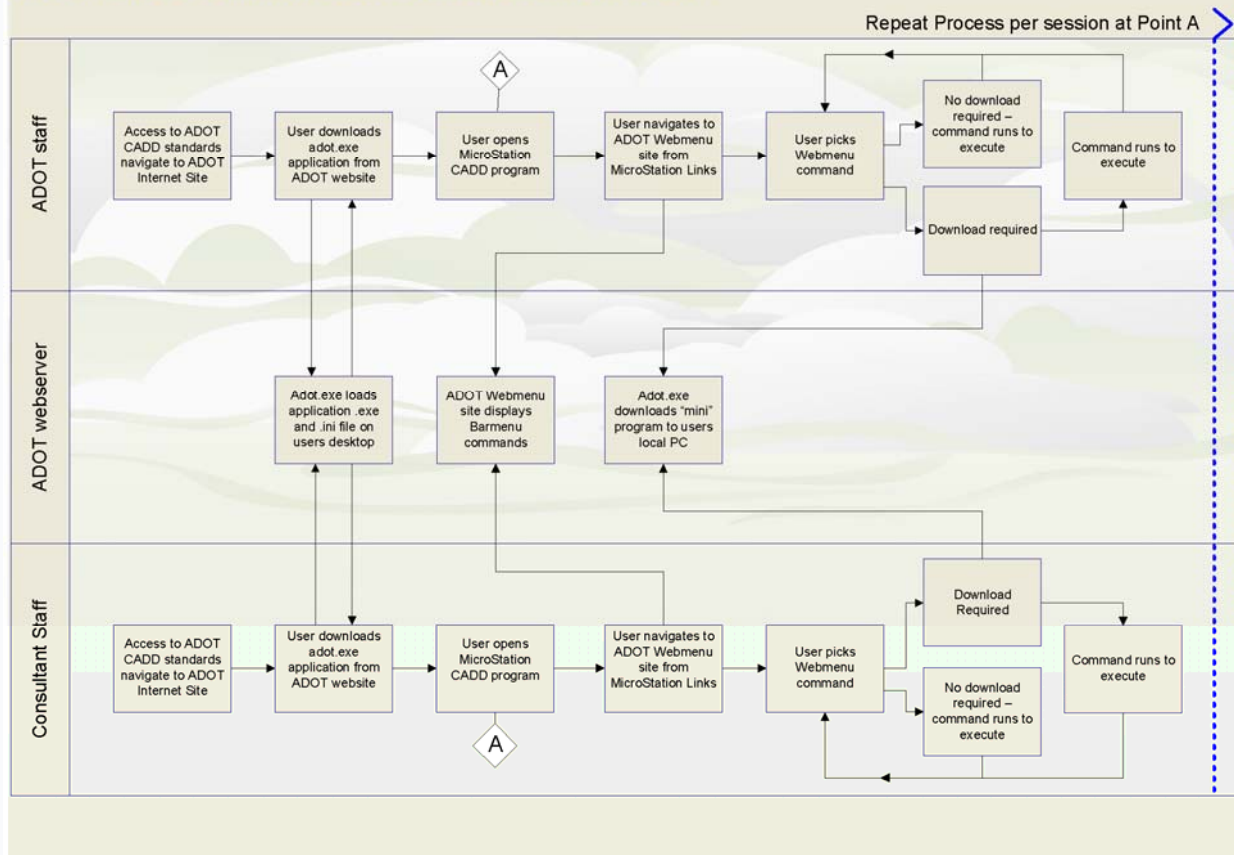
Functional Process

1. Download and extract install.exe
2. open MicroStation CADD engine
3. Select to Load the DOT menu item or parsed keyin
4. Select command from the Webmenu
5. Commands Execute in CADD engine seamlessly

File Structures

- Java Script
- HTML
- Standard web components .css (cascading style sheets)
- .ico (icon image files)

Final Reports

Feasibility Test of CADD Web Menus: SPR-683

Final Report

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September 2009

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Research Results

➢ Proved existing technology capable of enabling a Web-based Menu system

➢ Proved Menus can "look and feel" like current DOT Menus

➢ Proved Menus are easy to maintain

➢ Proved Menus can be located in 1 single location for ALL users

➢ Proved Menus can run "mini" programs as needed

Questions