Visual

Road & Bridge

Integrated Management System©

Users Guide

Road & Bridge Integrated Management System©

The Corporation

CompuLink, Ltd. was incorporated in the state of Missouri in 1982. From 1982 through 1993 the company designed, developed, implemented and maintained specialized cost and Fund Accounting systems in the for-profit business sector. In 1993 the company developed Version 1 of the Road & Bridge Integrated Management System©. Version 1 was wholly cost accounting based.

This is the seventh version release of R&B IMS since 1993. These versions have progressed from its' original 16-bit DOS roots (without integrated GIS), through integration of a DOS based GIS, to a Windows based *Lite* version (16 and 32 bit) with integrated GIS and finally to this Version 7 (released in 2002), which runs under Windows 95, 98, NT and OS/2 (32-bit only) and can be served data from nearly any other platform and OS that's Windows compliant. Our low-cost built-in Geographic Information System (GIS) has mapping capabilities for your Bridges, Culverts, Signs, spatial data analysis and a Visual Editor for adding new streets and roads as they come on line.

HELP ON HELP

For help on using HELP click on the HELP (on R&B IMS menu), then How to Use Help. This will invoke Windows8 built-in Help-on-Help.

Be sure to attach your own notes, annotations and bookmarks in specific areas. This will help you understand the program flow and integration levels. You can also print hard copies of portions of the text or this entire software manual.

COST ACCOUNTING

Cost Accounting is the analytic arm of accounting. Its' focus is on providing Managers and Supervisors with accurate and timely information for planning and controlling operations. It also provides information for accurate forecasting and budgeting of future operations. Cost Accounting answers six questions, in a timely and accurate manner:

1. What expenses were incurred;
2. When those expenses were incurred;
3. Where specific expenses were incurred;
4. How specific expenses were incurred.
5. Why expenses were incurred
6. Who incurred the expenses

Entries made under the Cost Accounting screens (Windows and Quick Entry) do not flow into your budget. Only entries made under the Fund Accounting Screens (Inventory purchases, Non-Inventory purchases and Contract payments) flow to your budget. One way to keep this in perspective is to think of how operations (sequentially) occur.

Generally, an asset or unexpired cost is purchased; this invokes the Fund Accounting function. At some later time (minutes to months or years later) the asset or unexpired cost is used (put into production) and the Cost Accounting function is invoked.

R&B IMS Cost Accounting is the tool for managing current operations in a cost effective manner and providing quantitative assistance for accurately forecasting and budgeting future operations. R&B IMS provides you with the tools to determine if costs were incurred in an efficient and cost-effective manner. R&B IMS cost accounting will provide you with:

An accurate cost for each job, road, road segment or project you worked on. Cost Accounting will provide you with the actual costs for maintenance and construction which will then provide justification for future budgeting and forecasting costs (We've incurred $439,225 to maintain this road, this year, and we can hard surface it for $559,000, therefore, it would be cost effective to hard surface it next year) and we now have the documentation to prove it!

An automatic accounting of what each person produced for your city or county. R&B IMS will accumulate and produce labor reporting to show where each employee worked and automatically generate a variance of total actual labor costs (paid) and total actual labor costs accounted for.

Justification for your PERSONNEL (do you need to increase your work force?) Employee work hours entries are made in the Cost Accounting Screen.

MATERIAL costs are accumulated for each road, bridge, etc. project. You can track material cost accumulation down to the road, street, road/street segment, culvert, bridge, sign, etc. R&B IMS will track all material costs for the lifetime of the road,

street, road/street segment, culvert, bridge, sign, etc. and will let you run a report for any time period. You're always in control of material costs.

The perpetual inventory system will keep you on up-to-date on inventory levels. Material usage entries are made in the Cost Accounting Screen.

Justification for your EQUIPMENT (the actual costs of fuel, maintenance labor, parts and subcontracted repairs, are accumulated on each piece of equipment. You can print a report showing all costs for operating any piece of equipment for any time period. You can also run a component analysis (for instance, track the cumulative useful life and costs for various grader blades on various graders). A built-in Preventive Maintenance module provides instant analysis on each piece of equipment. Equipment usage entries are made in the Cost Accounting Screen.

CONTRACTS, Contractor costs and performance is automatically accumulated so you will know, both current, and historically, the status of all contracts. Contract entries are made through the Fund Accounting - Non Inventory screen.

R&B IMS Cost Accounting is designed to keep you current on all operations of your department, the cost and spending patterns, cost accumulations and performance factors. It is the analytical arm of your computer system.

*Generally, the only way a **Cost Accounting entry** is initiated, is by the expiration of a cost (an operating expense) to accomplish the goal(s) of your department.*

*Generally, the only time you should make a **Fund Accounting entry** is when you receive documentation of a cost that has benefited your department. These costs will normally be evidenced when they are paid by the City/County Clerk/Auditor. This should insure that your Fund Accounting system stays in balance with the City/County Clerk/Auditors system.*

R&B IMS *will provide a complete Fund Accounting System by mid-year, 1999. This system will include conform to the standards of double entry accounting, will contain accounts receivable and accounts payable modules, and will generate trial balance and complete fund accounting statements. It also contains a built-in report writer for design of custom reporting at your location.*

Fund Accounting

Fund Accounting is the process and procedures of providing information on how much cost was incurred to accomplish department goals and objectives. It is primarily focused at reporting prior operations (after-the-fact reporting). Fund Accounting does not determine if costs were incurred in an efficient and cost-effective manner.

Entries made under the Fund Accounting screens (Inventory purchases, Non-Inventory purchases and Contract payments) flow into your budget. Entries made under the Cost Accounting do not flow to your budget. One way to keep this in perspective is to think of how operations (sequentially) occur.

Generally, when an asset or unexpired cost is purchased; this invokes the Fund Accounting function. At some later time (minutes to months or years later) the asset or unexpired cost is used (put into production). At that time the Cost Accounting function is invoked.

The primary function of R&B IMS Fund Accounting system is to show SOURCES of Funding and the USES of that Funding. Most entries you make to the Fund Accounting System will be supplied by the City/County Clerk or Auditor (depending on how your government entity is organized). These entries are made to synchronize actual *out-of-pocket* expenditures made (by the City/County Clerk/Auditor) to run your department. These entries become control accounts that the Cost Accounting accumulations are compared with.
The Fund Accounting System records *costs* that are made by the County/City Clerk to retire operating expenses incurred by your department. A cost is the actual outlay of cash to purchase assets, pay business expenses and retire vendor claims for their products which you have purchased. Therefore, the Fund Accounting System should always be in balance with the control account general ledger maintained by the City/County Clerk and/or Auditor.
The Fund Accounting System reflects expenditures that are made on behalf of your department for usual operations. Examples of these expenditures are:

- Record weekly/monthly Payroll Expenses for your department;
- Payment for fuel directly put into a vehicles fuel tank (non- inventory);
- Payment for fuel that is entered into your fuel inventory

The key point to keep in mind is that your Fund Accounting System should balance with the controlling account(s) maintained by the City/County Clerk and/or Auditor. If there is a payment made by the controlling authority (City/ County Clerk or Auditor) then your Fund Accounting System should reflect it.

The easiest way to maintain this balance is to enter the gross payment amount made by your city/county clerk to retire claims made to their department. An example would be to enter (make one entry) for a total month of payroll (for each account number) for your department. This entry would contain the total hours worked and, gross amount paid, with or without fringe benefits, depending on how you want to reflect your general ledger accounts. This entry, for example, might be for 3,200 hours (20 road construction employees x 40 hours x 4 weeks) and the total entry might be $38,400. You would only make one entry to reflect one months worth of road construction work. This entry will be furnished by your city/county clerk or auditor.

*Generally, the only time you will make a **Fund Accounting entry** is when you receive*

documentation of a cost has benefited your department. These costs will normally be evidenced when they are paid by the City/ County Clerk/Auditor. This should insure that your Fund Accounting system stays in balance with the City/County Clerk/ Auditors system.

Generally, the only way a ***Cost Accounting entry*** *is initiated, is by the expiration of a cost (an operating expense) to accomplish the goal(s) of your department.*

Accounting 101

Financial (Fund) and Cost Accounting Relationship

The conceptual basis of Fund Accounting and Cost Accounting stems from a specific difference between Costs and Expenses. Costs are the amounts paid for the acquisition of goods and services. Expenses are expired costs (costs incurred in carrying out the goal(s) of your department). Unexpired Costs (prepaid expenses) are costs that you incur but have not expired, yet. Liabilities are incurred when you acquire assets and pay for them at a later date. Assets are acquired resources used to carry out the goal(s) of your department.

Example: When a months rent is paid in advance this is an Unexpired Cost that will expire over the next 30 days. The date the check was written is the date the Cost is created. As the days go by the Cost becomes re-categorized as an expense.

Example: When the County/City Clerk writes paychecks a labor Cost is created. The paychecks retire the Liability and create an Expense for the period which the payroll covers.

Example: When tires are purchased for a vehicle a Liability is incurred. When the check is written to pay for the tires a Cost is incurred. When the tires are put into your inventory you have acquired an Asset. When you put the tires on a vehicle an Expense has occurred.

Simplified Road Management (SRM)

The SRM module is a derivative of the Cost Accounting Module. It uses similar tools and interfaces to assist you in answering questions, such as:

When did we last work on this road/street?
(Use Query to see a full work history of this road/street)
What work was done?
Who worked this road/street?
What material was used?
What is the surface type of this road/street?
What is the road width?
What is the road surface depth?
What are the (ranked) safety conditions for this road/street?
- By Surface
- By Ditching
- By Signage condition/functionality
- By Visibility (are signs/curves/etc. obstructed with brush, etc.)

After you find the specific road work record (highlight it) you can either double click the mouse, press the ENTER key or click on the ToolBar Triangle icon to see the actual work record that was entered when the work record was entered.

Road/Street Maintenance Cost Analysis

Clicking on Browse Data, Area Maintenance Costs will bring up the Browse window for Political (or other) subdivision of your city or county. The Browse window lists all areas of your jurisdiction, allows you to run Spatial Data Analysis by area (select costs for analysis under the GIS function menu Maps, type of map and the cost fields you want to analyze. You can also interrogate data in file by clicking on the Query button.

Double click (or highlight a record and click the Triangle (Edit record) on Toolbar to enter or change miles in this area. Clicking on the Maintenance Cost Tab will enable you to update all maintenance costs that pertain to this area into its record. Clicking Update brings up the Browse Road Maintenance window which subsets all record to the particular area this record represents. The costs will be subtotaled into the twelve cost areas. To audit a particular cost record (before summarizing into the area record) highlight the record and click the Triangle on ToolBar, or double-click on the record. This will display the actual cost record that was entered for this cost layer. You may make any corrections at this time and they will instantly be reflected in your database(s) and in the summary screen(s).

Weed Control Module

To operate the weed control module you must decide how you want to utilize the detail it generates. If you want to collect weed control costs for the entire city/county for one year then you would create one project under which all costs (labor, material, equipment and outside contracts) are accumulated under.

If you want to collect Weed Control costs (individually) for each Township in your county you would create one project for each Township's Weed control Costs. These projects are created under the Menu selection Browse Data -> Projects and Project Analysis (create a new project (PF8)). Once the project is created it then becomes available in the Project Lookup Window that attaches the Weed Control Location, Ambient Conditions and memo information for the specific application. If the Weed Control project has more than one application then create more than one Weed Control Descriptive record (and attach it to the same project

To collect Weed Control costs and bill them to a property owner you utilize the same process. Create a new project (call it anything, maybe *Weed Control – J.L. Lawson)* so it is easily identifiable with the property owner to be billed. Accumulate the costs in the Cost Accounting module and the system accumulate summary cost information for you.

When you're ready to bill the cost to the property owner use the Accounts Receivable module *Accounting - > Accounting Complete - > Accounts Receivable*, or, Shift F10. The project will be listed with the lookup button when you're ready to add a detail line item to your invoice.

To charge tax on the line item just enter a new line item with your tax charge

SCREEN CONTROL

The ToolBar is the top horizontal portion of the Main Window. It consists of the menu (File, Edit, Browse, Reports, Window, Help), which is in standard Windows format, and, the row of Icons which comprise the ToolBar. Each Icon has a bubble-help attached. Open any database, then put mouse cursor on top of an icon to see the bubble-help. Each Icon controls their respective functions in the active/foreground window.

Function Keys apply to the active window:
- Function Key 1 (PF1) invokes context sensitive HELP for the open (active) window
- Function Key 7(PF7) copies field from previous entered record to current record
- Function Key 8 (PF8) opens a new record for data entry
- Other Function Keys will be incorporated into future versions of R&B IMS

Other user aid:
- To invoke Field specific Bubble Help; place mouse pointer over field
- A quick way to back out of an open screen is to press the ESCAPE key
- A query button is provided on each screen or click magnifying glass Icon on ToolBar

A quick search (not using the Query button) can be performed in any indexed field by first clicking on the index tab to select an index, next, click on the white data area of the window to transfer control to the data area, and, key in the first few characters you are searching for (in that particular index field). As you key in more characters the search will narrow to the item you're looking for. Before searching for another item in the same index field press the up arrow (on your keyboard) to reset the search engine (this tells R&B IMS you will be searching for another item in the same index field).

You can also open nearly any database/screen by entering the following Hot Keys combinations (these are noted on the menus):

ShiftF2	Cost Accounting	Accounting Lite
ShiftF3	Fund Accounting - Uses	" "
ShiftF4	Fund Accounting - Sources	" "
ShiftF5	Budgeting	" "
ShiftF7	Purchase/Returns	
ShiftF8	Receivers (Material Receipt)	
ShiftF9	Aged Open Accounts Payable	
CntrlF2	Equipment	
CntrlF3	Inventory (Materials)	
CntrlF4	Personnel	
CntrlF5	Vendors/Contractors/Customers File	
CntrlF7	Bridges	
CntrlF8	Culverts	
CntrlF9	Signs	
CntrlF10	Weed Control	
CntrlF11	Complaints	
CntrlF12	Simplified Road Management	

EDITING

With R&B IMS you have several options for adding, editing, modifying and querying data. These options range from all keyboard data entry (Quick Entry) to full mouse controlled data entry (Windows Style) and to various methods for finding data in your existing data files. Various navigation techniques are also available. This system is designed for the individual user to have tools available for the way they want to work - not the way the software forces you to work. Hot Keys and ALT-?????? Combinations are also covered in the Screen Control Section.

HotKeys:
- Function Key 7 (PF7) copies a field from a previously entered record into current record
- Function Key 8 (PF8) opens a new record for data entry
- To invoke Field specific Bubble Help; place mouse pointer over field; wait a second
- A quick way to back out of an open screen is to press the ESCAPE key
- A query button is provided on each screen

Other Hot Keys:

ShiftF2	Cost Accounting	Accounting Lite
ShiftF3	Fund Accounting - Uses	" "
ShiftF4	Fund Accounting - Sources	" "
ShiftF5	Budgeting	" "
ShiftF7	Purchase/Returns	
ShiftF8	Receivers (Material Receipt)	
ShiftF9	Aged Open Accounts Payable	
CntrlF2	Equipment	
CntrlF3	Inventory (Materials)	
CntrlF4	Personnel	
CntrlF5	Vendors/Contractors/Customers File	
CntrlF7	Bridges	
CntrlF8	Culverts	
CntrlF9	Signs	
CntrlF10	Weed Control	
CntrlF11	Complaints	
CntrlF12	Simplified Road Management	

You can combine hotkey combinations to instantly move to entry screens, etc. Example: to enter a new cost accounting record (from the main R&B IMS window); Shift-F2, F8

A quick search (not using the Query button) can be performed in any indexed field by first clicking on the index tab to select an index, next, click on the white data area of the window to transfer focus to the data area; and, key in the first few characters you are searching for (in that particular index field). As you key in more characters the search will narrow to the item you're looking for. Before searching for another item in the same index field press the up arrow (on your keyboard) to reset the search engine (this tells R&B IMS you will be searching for another item in the same index field).

The ToolBar contains icons that are always visible at the top of the R&B IMS window. If the

ToolBar icons are *grayed out* they are not active on the window that is currently active (in the foreground). The ToolBar consists of (moving from left side) the following controls that are operational when lighted (blue):

First 3 controls move to PRIORr record(s)
Magnifying glass brings up the Query to select record(s)
Next 3 controls move to NEXT record(s)
The Plus (or PF8 Key) adds a record
The Pyramid edits highlighted record
The Minus deletes highlighted record
The Quote (or PF7 key)copies a field from previously viewed record to current record

Context sensitive HELP is always available by pressing PF1

QUICK START

This section is broken into two parts: First, an overall discussion of how the accounting system works, and Secondly, a step-by-step menu for system startup.

Overview

The Fund Accounting System records costs that are made by the County/City Clerk on behalf of operating expenses incurred by your department. A cost is the actual outlay of cash/checks to purchase assets and pay business expenses. Therefore, the Fund Accounting System should always be in balance with the control account general ledger managed by the City/County Clerk or Auditor. The Fund Accounting System will reflect all expenditures that are made on behalf of your department for usual operations. Some examples of these expenditures are:

- Record weekly/monthly Payroll Expenses for your department;
- Payment for fuel directly put into a vehicles fuel tank (not inventoried);
- Payment for fuel that is entered into your fuel inventory

The key point to keep in mind is that your Fund Accounting System should balance with the controlling account(s) maintained by the City/County Clerk and/or Auditor. If there is a payment made by the controlling authority (City/ County Clerk or Auditor) then your Fund Accounting System should reflect it.

The Cost Accounting System records expenses that are incurred in performing the operations of your department. An expense is the expiration of a cost; a cost which has expired in order to accomplish the goal of your department. Examples of these expenses are:

- Day to day work performed by an employee on a bridge rebuild
- Deliver load of gravel to project (incur labor/equipment/material expense)
- Use Grader on a road project (booked as labor and equipment expense)

The key concept is your Fund Accounting System should always balance with your city/county clerk/auditor and the Cost Accounting System should reflect the expirations of the costs incurred and paid by the spending authority.

There will, necessarily, be variances between your Financial and Cost accounting systems. These are normal variances caused by PRICE and QUANTITY differentials. An example should illustrate this:

Joe's gross check is $400.00 for a 40 hour work week
Joe reported working 32 hours on various projects
Joe's standard labor cost rate is $11.00 per hour
The actual cost to your department is $400.00
The actual expense (expired cost) is 32 hours X $11 or $352
You have a variance of (400-352) or $48 which consists of:
40 hrs. - 32 hrs. = 8 hrs. X $10 or $80 - (32 hrs. X $1 or $32) = $48.00

The solution is to: (1) annually recalculate actual hours accounted for in the Cost Accounting System and compare those to the Fund Accounting Costs, then adjust the Standard Rate charged to bring them into sync and (2) insure that all employees turn in 40 hours work for 40

hours pay. This same analysis works for equipment and material Costs and Expenses. There are built in reports that will calculate these variances.

The goal is to keep your Fund Accounting System in balance with the City/County Clerk/Auditors spending for your department and to keep the Cost Accounting System in balance with your Fund Accounting System. If this is accomplished then the actual Costs are reflected directly to the road/road segment, bridge or other work your department performs. You will then be able to manage, forecast, budget and decrease operating costs throughout the department.

Step-by-Step Startup

> *To enter a record; first, select the file which brings up the Browse Window, then click the + on your ToolBar, or, press PF8 (Program Function Key 8). This will bring up an empty record. You do not have to fill out all fields in a record and you do not have to enter any of the records, initially. If you want to be able to utilize, for instance, an employees pay rate throughout the system, then, it must be entered in the employees Personnel File.*

1. Enter one record under Menu selection Browse, Configuration, Entity & Fiscal Year
2. Enter one record under Menu selection Browse, Cost Centers, Personnel
3. Enter one record under Menu selection Browse, Cost Centers, Equipment
4. Enter one record under Menu selection Browse, Cost Centers, Inventory Setup
5. Enter one record under Menu selection Browse, Cost Centers, Contractors
6. Enter one record under Menu Selection Browse, Cost Centers, Vendors
7. Enter one record under Menu Selection Browse, Cost Centers, Bridges
8. Enter one record under Menu Selection Browse, Cost Centers, Culverts
9. Enter one record under Menu Selection Browse, Cost Centers, Signs
10. Enter one record under Menu Selection Browse, Projects & Project Analysis
11. Enter one record under Menu Selection Browse, Accounting, Cost Accounting
12. Enter one record under Menu Selection Browse, Accounting, Fund Accounting
13. Enter one record under Menu Selection Browse, Accounting, Fin Accntg, Materials

When you do steps 1-9 you're entering base information for discrete elements that describe your departmental operations. Once these discrete elements (specific Fiscal Year, an employee, a piece of equipment, an inventory item, a contractor, a vendor, a bridge, a culvert and a sign) they do not have to be entered again; just update as their profile changes.

Step 10 enables the system to start collecting costs on specific discrete elements (employees, material, equipment, contracts). You can elect to collect costs by any criteria you determine is useful. The criteria could be:

By discrete project (a bridge build, FEMA project, etc)
By road
By road segment
By roads in separate townships or parishes
By roads in a Commissioners District
By roads in any manner you want to collect costs

By Administration costs
By any criteria and for any time period you deem useful

Even though you collect costs by any criteria you are always able to run reports by date range, road(s), employees, equipment, materials, contractors, etc., etc., etc.

Step 11 is the application of a cost layer (work ticket, Quarry ticket, Equipment repair, etc.) to the specific project, road, road segment, etc. that you established in the prior step (10). Once your system is set up and configured for your departmental operations most of your work will be done in the Cost Accounting Entry screen (either the Windows or Quick Entry mode). Costs are entered into the Cost Accounting side only, **IF** they are incurred because of an employees work effort, equipment use or material that is applied to a road or project.

(Peruse Table Below)

Step 12 and 13 are cost applications to the Fund Accounting system. Any cost added to your system through the Fund Accounting side effects your budget and Fund Accounting reporting. The best way to decide if a cost is entered into the Fund Accounting Side is to ask yourself the question, A*Am I reporting a new departmental cost that was paid by the City/County Clerk (or Auditor) and, if so, was the cost a material purchase or other (payroll, fuel bill, bill for tires, etc.?*

The Fund Accounting System is used ONLY to enter costs that were incurred and (generally) paid for, by City or County government to reach the goals of your department; i.e. maintain and/or build assets for your city or county.

Accounting System Decision Table: Examples

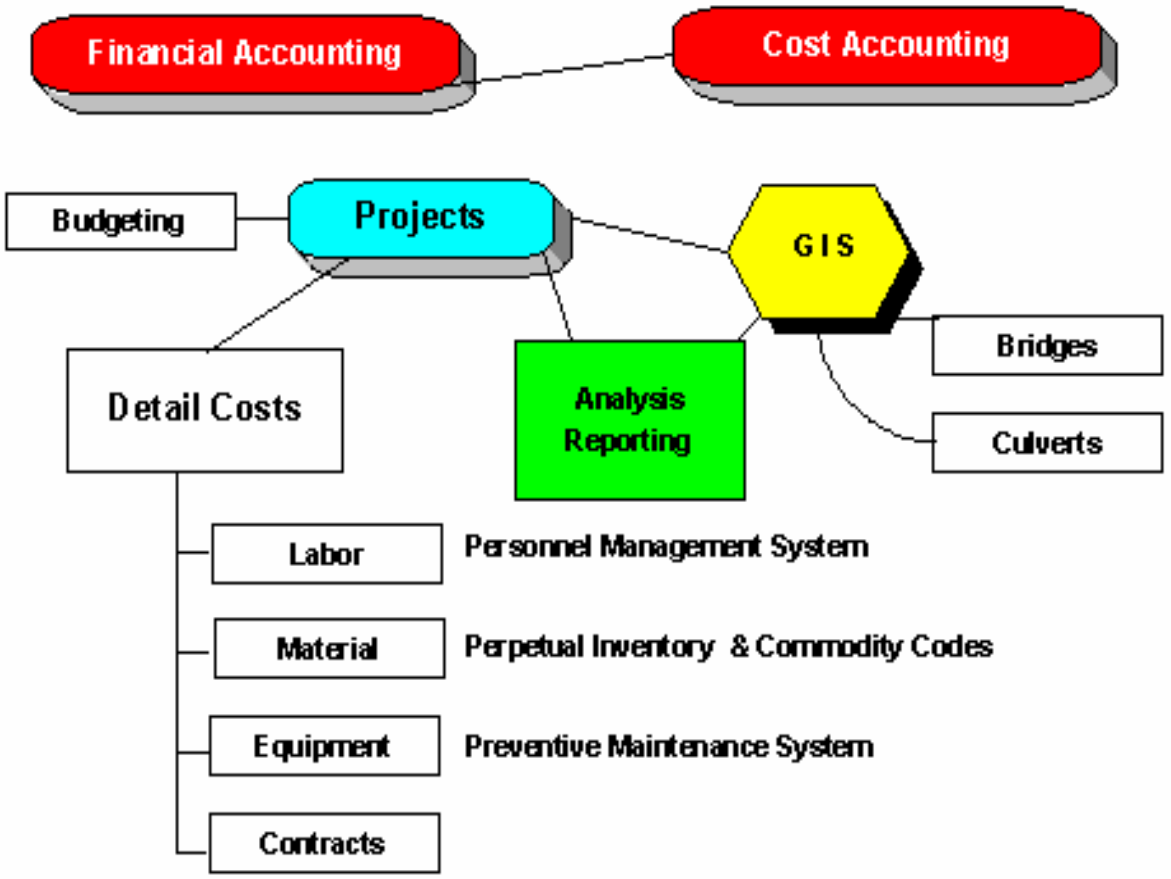
Which entry should be used?

Entry Type	Cost Accounting	Fund Accounting Non-Material and Contractor Payments	Fund Accounting Material Purchase
Record an employee hours worked on a job	Yes		
Record employee FICA, FUTA, Benefits cost		Yes	
Record a monthly departmental payroll (Be sure to charge correct A/C and hours worked)		Yes	
Record equipment hours on bridge project	Yes		
Record material used on bridge project (material is from your inventory)	Yes		
Record material used on a bridge project (material is furnished by the contractor)		Yes	
Record engine rebuild by outside garage		Yes	
Record engine rebuild by your department (parts out of your inventory and labor costs)	Yes		
[1] Record equipment parts; purchased, not entered into inventory and immediately used		Yes	
Record equipment parts that are purchased, added to your inventory and used later	Yes		
Record monthly payment to quarry for Road Salt that is put into your on-hand inventory			Yes
Record monthly payment to quarry for Rock hauled directly from quarry to your job sites		Yes	
Record loads of rock as they are delivered to a job site/road/street, etc.	Yes		
Record fuel purchase from fuel supplier and delivered to your fuel storage tanks			Yes

[1] If materials (example: equipment parts) are purchased, but not entered into your inventory there is no history captured or generated. It is a good idea to always run equipment parts through your inventory so you can develop an accurate cost for equipment operations.

*Normally, a **Fund Accounting entry** is initiated when payment of a bill (an operating cost) by the City/County Clerk and/or Auditor. If the payment is for material then it should be entered in the Material Purchase side of your Fund Accounting System. A **Cost Accounting** entry is normally initiated when a cost expires (becomes an operating expense) in accomplishing the goal(s) of your department. Normally, the only time you should make a **Fund Accounting entry** is when you receive documentation that a cost has been incurred. (These costs will normally be evidenced when they are paid by the City/County Clerk/Auditor.*

SYSTEM FLOW CHART



R&B IMS is designed as a fully integrated accounting system for your Road & Bridge, Public Works, Street and Highway Department. The unique design enables you to start and run any module independent of the other modules. This means you can start using any part of the system without having to worry about *feeding* the other modules, which means; *you can start R&B IMS the way your workload permits*. Other fully integrated systems require you bring all components on-line at the same time, which is very labor intensive - a luxury most departments cannot afford!

ROAD & BRIDGE
INTEGRATED MANAGEMENT SYSTEM
MODULES

Fund Accounting Module
Cost Accounting Module
Perpetual Inventory Module for multiple inventory locations
Equipment Maintenance Shop Work Order Module
Weed Control Module
Preventive Maintenance Module
Graphics analysis (charting) module (bar, line, scatter, area, pie graphs)
Simplified Road Management Module
Complaints module for managing citizen complaints module
Project cost estimator module
System security module (control user access and module level privilege)
Eight (8) HELP levels (more than any other software package!)

1. Field level Bubble HELP (place mouse cursor on a field)
2. Module level HELP (PF1)
3. *How Do I* …. HELP focus on accomplishing specific tasks
4. Built-in R&B IMS manual (what you're currently reading)
5. Built-in Report Writer manual
6. CompuLink's Web Site at www.compulink-ltd.com
7. 800 phone help at 1-800-879-0517
8. On-site training at your city or county (optional cost)

Over 60 built-in reports
Built-in Kodak Imaging module (utilizes WIN 98/NT/2000 engine)
Infrastructure asset databases (GASB 34)
Built-in training slide show
Optional Report Writer for custom reporting at your location
Instant Project Actual Costs to Budget analysis module
Overhead applicator for allocating overhead costs to active projects
Geographic Information System Module

- Main Map of your County or City
- Map with Bridges
- Map with Culverts
- Map with Signs
- Map for Spatial Data Analysis
- Map with Road/Street Maintenance Costs Analysis
- Map with underground utilities locations
- Visual Editor for adding new roads, streets, etc.
- 3-D Topographic maps of your city or county are available

Executive Information System (EIS) for instant data analysis
DOS style menu system for access (standard WIN drop down menus)
Year-End Wizards to save you thousands of key strokes

GIS

For high-end GIS functionality we encourage you to move to ESRI's Arc/Info© and ArcView© products. Our integrated MapPlan© GIS implementation has limited functionality but, the data you collect to make it run (bridge, culvert and signs information) is also directly usable in other high-end GIS! Arc/Info/ArcView© products have unlimited functionality! We have datasets for your city or county immediately available, or can implement custom County/ City-Wide GIS to your specific needs.

Operating Tips:
Context sensitive HELP is always available. First, highlight a menu item, then press PF1 (Program Function Key 1). A GIS is very CPU and Data Bus intensive. The faster your CPU the better! To halt screen redraw press ESCape key (you may have to wait a few seconds until the current operation reaches a stop point, but you will regain control of the command menu without the operation completely going through the full redraw sequence.

> HELP is context sensitive; just highlight command and press PF1. It's a good idea to spend some time perusing the HELP screens before running GIS; HELP runs the same as WINDOWS HELP.

COMMAND STRUCTURE:

File	Edit	Maps	Data	Screen	View	Preferences	Utilities	Redraw	Help
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FILE:

Load Map	This loads selected map without data files
Printer Setup	Prints to any WINDOWS compatible printer or plotter
Print	Sends screen to printer; Compose your picture first
Exit	

EDIT:
Copy map to WINDOWS Clipboard; import to ALL WINDOWS compatible applications
Text/drawing tools
Annotation options - Change colors, sizes, fonts, etc.
Modify, Delete, Move text you've added to the screen
Turn Odometer/measurement tool on or off

MAPS:
For spatial Data analysis of demographic, etc. data. This option requires data (dBase format) in proper format. GIS reads standard dBase data files. Spatially analyze data by Color/Bar/Pie/PushPin/CrossTab charts.

DATA:
Query, Conditional Query, Summary Query and Map ID Query for analyzing wire frame map or closed polygon datasets only. The Browse function has been removed from this GIS due because of integration issues with R&B IMS.

Always Zoom-in to a small area before turning map labels on.

To halt a screen redraw press ESCape key (wait a few seconds till current re-draw finishes) to regain control of the command menu.

VIEW:
Select View and Select Zoom Area; then (with mouse) put crosshairs on upper left of area you want to enlarge - press and hold left mouse button and drag "rubber band" over area to enlarge -- release left mouse button when you have drawn "rubber band" around area you want to zoom in on. Select View and Restore from Zoom to redraw the complete map.

PREFERENCES:
Change screen colors and distance options; save from one session to another.

UTILITIES:
Utilities and Measure Map allows you to determine any geographic location, its latitude and longitude and/or measure distance from one point to any other series of points on the map.

REDRAW:
Redraws screen after you have marked up the map and want a clean start. When working with the Data Editor (Browser) and closed polygon datasets (Voter Analysis & Expense Analysis) the redraw reads changes in the data files and works interactively with GIS. To halt a Redraw press ESCape.

Example: You want to see map with only the voter precincts outlined. Select Screen, Layers and turn off all layers except the Political layer. Then select Redraw.

HELP:
Context sensitive and searchable - Follows WINDOWS protocols

TRANSFERRING data from CompuLinks' MapPlan to other software:
For instant transfers of screen data from GIS to all WINDOWS-aware CAD programs use the WINDOWs ClipBoard program. Be sure to set the background color in MapPlan to the same color as the program you are moving the raster image. Reference WINDOWs HELP file for clipboard operation.

To initiate a screen capture to WINDOW ClipBoard select Edit and Copy after composing the screen features/layers you want. This copies the screen to WINDOWs ClipBoard. First, set GIS screen background colors to the same as your CAD program, then set GIS layers to the colors you want, then PASTE the GIS screen into WINDOWs ClipBoard. Transfer the bitmap to any WINDOWs compatible program.

Other methods of transferring data from our GIS to other programs are, create a .EPS file (Encapsulated PostScript) with our GIS; You first need to setup an EPS printer driver in Windows and then print to disk. Another method is to create a HP-GL file with our GIS; then transfer this file to your program - check to see if it can read this format. Another method to transfer our GIS data into your CAD format is to print via printer/plotter to a piece of paper the data layers you want to transfer then digitize these layers individual into your CAD/GIS native data format.

An inexpensive and foolproof method is to utilize the services of your CAD or GIS vendor and

have them convert the individual data printed to paper into layers into your native file format. Nearly all vendors (AutoCad©, InteGraph©, etc.) will digitize the paper print-outs to their proprietary formats (.DWG, .DXF, etc.).

The fastest method is to use the WINDOWs ClipBoard program. File transfers are as easy as clicking on EDIT and COPY and then paste the bitmap image into any Windows compatible program. You may also utilize your Print Screen key, then, Paste the screen from WINDOWs ClipBoard into your other application. After the transfer you will probably want to "clean-up" the image and add or delete annotations. This transfers a bitmap image. To convert the bitmap image to a vector draw file simply trace over the lines and save the file as a drawing (vector) file in you CAD program. Be sure to set background color to the same as the program you are pasting bitmap image to.

EDITING YOUR CITY/COUNTY DATA into existing database:
To draw points on your county/city map that represent the exact location of a bridge (or other geophysical feature) first start R&B IMS. Open the Bridges Dataset (Browse, GIS, Run Bridges. You will probably see a Sample Bridge point on your map. Next, click on DATA and QUERY, then place cross hairs on the blue dot and click the left mouse button. The database record for this bridge appears. This is a read-only record when viewed from the GIS. To quit viewing this record click on OK.

To edit/delete/modify/add data to any bridge, culvert or sign record click on open the respective database in R&B IMS.

Another, and much easier, way, when you are originally populating the bridge database, is to: (first, pull all your bridge data together!)

First; get the hardcopy (State Bridge Data) information on all bridges so you can reference the bridge number, location, etc. If this data is available in electronic format (nearly all states can provide you with bridge data on disk - call your State Highway Department for info) CompuLink can convert it into your Bridge Data File. Call us for info.

Next, start up your the built-in GIS (Browse, GIS, Main Map). Once your map is on screen click on MapPlans= menu selection Utilities and Measure Map. Then, move the crosshairs to the location of the first bridge and click the left mouse button. The Longitude and Latitude of this location will be recorded in the Measurements box. Now, click on the R&B IMS menu selection Browse, Cost Centers, Bridges File.

Next, enter the bridge information and the Longitude and Latitude (exactly as shown the Measurements pop up) for the respective bridge. Save the record and close the Bridges File and MapPlan GIS. Now restart your GIS (Browse, GIS, GIS with Bridges). The GIS dataset and the Bridge File is read by the GIS as it starts. It will display a Blue Dot at the Bridge location you have just entered.

Once you're comfortable with the entry process it will be much faster because you can determine Longitude/Latitude location with one mouse click, then write the Longitude and Latitude on the hardcopy map and go to the next bridge. You can enter as many bridge locations as you want to in each cycle (over 3,000). The Culverts and Signs File work the same way. Just click for the Longitude and Latitude and enter them in the respective files.

An easy way to do collect Latitude and Longitude is to break your city/county into two/three/four/etc. quadrants which can be enlarged to full screen (VIEW, SELECT ZOOM area and mark with your mouse). This allows you to more accurately place the bridge location. Using

UTILITIES, MEASURE MAP, click your left mouse button on the exact location that you want the symbol to print. Write the exact latitude and longitude (longitude is always a minus) exactly as displayed in the measurements pop up) on the same piece of paper as the bridge descriptive data. After entering a few bridges save the database, exit it and restart your GIS - MAIN MAP - BRIDGES. The symbols should be in the exact locations you previously determined. After proving this method you can enter the rest of your bridge data.

Map labels which read *unk-number* (example: unk-322) are labels which do not hold any significant information. These may be edited, deleted or changed with R&B IMS Browse, GIS, Streets/Roads File. Because the data compiled in our data files has come from many sources, you may have renamed you streets/roads for 911, or there are erroneous map labels, you may want to change a street name.

The easiest way to modify map labels is to print a hard copy of the map with the labels layer ACTIVE and MAP LABELS turned ON. Next, use R&B IMS Browse, GIS, Streets/Roads File to change the road/street names, or, change the layer they print in.

VISUAL EDITOR:
Data files (with .DBF extension) are standard dBase files and may be edited with any dBase capable data engine (there are dozens of them).

Under the FILE COMMAND:
LOAD PICTURE - Loads the vector draw file, layers file, config file, database file and compiles links them via commands in the XXXXXXXX.WPC file.

SAVE PICTURE - Saves the above files in a XXXXXXXX.WPC file. This then becomes custom developed fileset.

LOAD MAP - Loads just the XXXXXXXX.VTR (vector line draw file) and the database (.DBF file) with the same name.

LOAD DATABASE - Loads an additional data file and links it to the vector draw file. An example is the EXPENSE.WPC file which links:

Township.vtr, Township.dbf, Township.lyr, Township.cfg files plus the data analysis file TOWN_ANL.DBF. This file contains the spending data that is spatially analyzed in the EXPENSE.WPC dataset.

Under the EDIT command:

COPY - Anything that's drawn on the screen is copied directly to the WINDOWS Clipboard for embedding into any windows-aware program. You may want to change the background colors before copying (Preferences - System Colors - Map Area)

TEXT, LINES, CIRCLES, SYMBOLS - For attaching anything you want to the vector draw file you are currently viewing. You may want to first select (under Annotation Options) the color

and font for the item you are attaching to your map. Also, check ANNOTATION OPTIONS, SET ANNOTATION and make sure USE ANNOTATION ZOOM FACTOR is not checked if you want to view whatever you add from the full UN-ZOOMED map drawing. After attaching annotations, to save the new dataset, select FILE SAVE PICTURE and either give it a new name or copy over the original .WPC file.

Remember, HELP is context sensitive - just highlight the command and press PF1 key.

The Visual Editor version runs the same as the RunTime version AND provides additional ability to save any map vector drawing (with added annotations and/or linked databases). You may then couple the saved .WPC file with the RunTime (MPWRUN.EXE) and supporting utility files and have a free standing map (or subset map) of your city or county.

The only additional code you must supply is the runtime code that links MPWRUN.EXE with the .WPC file you create (by saving the vector file while in the Visual Editor version). The command code may be entered on the command line, entered in a PIF file (WIN 3.x) or entered into a Property Sheet (WIN 95/NT or OS/2).

C:\MPW\MPWRUN.EXE \MPW\xxxxxxxx.WPC

You may distribute (within your workplace) these freestanding systems. The systems are not for resale to other persons. For maps, other data analysis applications or questions please call.

Configuring GIS to run on your Network:
There are two primary mode which you can operate the GIS in a network environment. The first mode is the easiest and most network effiicient method. It also guarantees that map redraws are performed at the optimum hardware/software level.

The pros:

- The FASTEST! (Due to large data structures inherent in GIS, using this mode decreases network traffic to nearly zero because all files are copied to local drive)
- The EASIEST! (No files to reconfigure or network performance tweaking needed)

The cons (one user is responsible for all mapping changes and modifications):

One user will be designated to do all updates, reconfigurations and data changes

This mode does not need constant live network connections; but does need a temporary network connection for copying these specific files to other network users when any changes or modifications to the data and/or map (vector) files are made

If you elect to use this mode the files that must be copied from the controlling user to all other network GIS users are (if the controlling user modifies them) every time the files are modified, and the network user wants an updated dataset.

Files specific to GIS operations:

C:\PROGRA~1\R&B_WIN\DATA*.WPC (* means all files with a .WPC extension)
C:\PROGRA~1\R&B_WIN\DATA*.LYR
C:\PROGRA~1\R&B_WIN\DATA*.DBF

C:\PROGRA~1\R&B_WIN\DATA*.CFG

Files that supply data for GIS analysis:

C:\PROGRA~1\R&B_WIN\DATA\BRIDGE.DBF	(R&B IMS Bridge data file)
C:\PROGRA~1\R&B_WIN\DATA\CULVERT.DBF	(R&B IMS Culvert data file)
C:\PROGRA~1\R&B_WIN\DATA\EXPENSE.DBF	(R&B IMS Spatial data file)
C:\PROGRA~1\R&B_WIN\DATA\MPW_MAIN..DBF	(Streets, Roads, etc. names)
C:\PROGRA~1\R&B_WIN\DATA\POLSBDIV.DBF	(Maintenance cost summary)
C:\PROGRA~1\R&B_WIN\DATA\SIGNS.DBF	(R&B IMS Signs data file)
C:\PROGRA~1\R&B_WIN\DATA\UTILITY.DBF	(R&B IMS Utilities data file)

The easiest and most foolproof way to copy these files is to create a batch file at DOS level. Create an icon for each batch file (for copy operation to a specific user). When you want to update a particular users files, just click the icon. The Batch file would look like this (with the users network drive letter assumed here as E: (for other users just change the E: to wherever their drive is mapped on your network).

The batch file is named: Copy_E.BAT

```
Copy C:\PROGRA~1\R&B_WIN\DATA\*.WPC   E:\PROGRA~1\R&B_WIN\DATA
Copy C:\PROGRA~1\R&B_WIN\DATA\*.LYR   E:\PROGRA~1\R&B_WIN\DATA
Copy C:\PROGRA~1\R&B_WIN\DATA\*.DBF   E:\PROGRA~1\R&B_WIN\DATA
Copy C:\PROGRA~1\R&B_WIN\DATA\*.CFG   E:\PROGRA~1\R&B_WIN\DATA
Copy C:\PROGRA~1\R&B_WIN\DATA\BRIDGE.DBF  E:\PROGRA~1\R&B_WIN\DATA
Copy C:\PROGRA~1\R&B_WIN\DATA\CULVERT.DBF  E:\PROGRA~1\R&B_WIN\DATA
Copy C:\PROGRA~1\R&B_WIN\DATA\EXPENSE.DBF  E:\PROGRA~1\R&B_WIN\DATA
Copy C:\PROGRA~1\R&B_WIN\DATA\MPW_MAIN..DBF  E:\PROGRA~1\R&B_WIN\DATA
Copy C:\PROGRA~1\R&B_WIN\DATA\MAIN_MAP.DBF  E:\PROGRA~1\R&B_WIN\DATA
Copy C:\PROGRA~1\R&B_WIN\DATA\POLSBDIV.DBF  E:\PROGRA~1\R&B_WIN\DATA
Copy C:\PROGRA~1\R&B_WIN\DATA\SIGNS.DBF  E:\PROGRA~1\R&B_WIN\DATA
Copy C:\PROGRA~1\R&B_WIN\DATA\UTILITY.DBF   E:\PROGRA~1\R&B_WIN\DATA
EXIT
```

A copy (so you can copy and/or edit it, if necessary) of this batch file (COPY_E.BAT) is in subdirectory:

C:\PROGRA~1\R&B_WIN\DATA

If you have more than one network node to update make copies of the batch file and name it COPY_F.BAT (for an update of your F: drive. Be sure to change the all lines in the batch file to point to drive F: (or, whatever network drive you want to update).

The most important advantage of this method is your network does not have to carry the large datasets when a network user runs their GIS -- it simply runs locally, but with the update data files which you copied to their drive. This method can drop GIS startups and screen redraws from over 60 seconds to under 10 seconds; depending on speed of your network and the current load it's carrying and the speed of the network node system.

The **second mode** of GIS network operation is to utilize the network for all GIS transactions. This mode necessitates a live network connection whenever the remote user (node) is running their GIS. The setup steps are (all steps are from the remote users machine). You must have a live network connection before taking these steps. In the process of setting up each dataset the binary file(s) created are dynamically configured to your network/

workstation environment – for the fastest possible network performance. From the users machine, first set Preferences, DOS Paths to the appropriate subdirectory and drive letter.

1. Startup **Visual Editor** on the users machine
2. Click on File, Load Maps, Set Drives to the network drive with your master dataset
3. Click on (to load) MAIN_MAP.VTR (you will immediately notice the network slowdown due to the size of your dataset… this is normal (the first mode will eliminate this network load problem)
4. You will probably want to set Edit, Annotation Options and Label font and color
5. Click on File, Save Picture and overwrite MAIN.WPC
   From this point on (on this remote network node) when you select menu GIS, MainMap the primary dataset for your county or city will load from network server.

Setting up GIS Analysis Files:

Startup **Visual Editor** on the users machine
Click on File, Load Map, Set Drives to the network drive with your master dataset
Click on (to load) MAIN_MAP.VTR
You will probably want to set Edit, Annotation Options and Label font and colors
Click on File, Load DataBase, Set Drives to the network drive with master dataset
Click on BRIDGE.DBF and OK to load the Bridge Data File
Click on Maps, PushPin. The popup window should show Latitude and Longitude
Click the dropdown arrow under Label and (top of window) select BRIDGENO, OK
Set Edit, Annotation Options, PushPin label font to the desired size and color, etc.
Click File, Save Picture as BRIDGE.WPC (overwrite existing file)

To set up other data PushPin .WPC files, use the same process and link the following:

. VTR file	.DBF File	.WPC file created (saved)
MAIN_MAP.VTR	CULVERT	CULVERTS.WPC
MAIN_MAP.VTR	SIGNS.DBF	SIGNS.WPC
MAIN_MAP.VTR	UTILITY.DBF	UTILITY.WPC

To set up the data analysis file linkages (run from the remote network node)

1. Startup **Visual Editor** on the users machine
2. Click on File, Load Map, Set Drives to the network drive with your master dataset
3. Click on TOWNSHIP.DBF and load it
4. Click on File, Load Database and load EXPENSE.DBF
5. In GIS, Click on Screen and Map Labels and set fonts and colors
6. Click on Maps and Bar Maps and set LABOR, MATERIAL, EQUIPMENT, CONTRACTS in the first 4 fields on the Bar Map: Data Link Fields popup screen. Set Link to MID (Map ID). Click OK and the map will redraw with bar charts.
7. Click on File, Save Picture and overwrite SPATIAL.WPC.

Set up the other data analysis .WPC file using the same process and link the following:

. VTR file	.DBF File	.WPC file created (saved)
TOWNSHIP.VTR	POLSBDIV.DBF	MAINTENC.WPC

The above processes create a new binary file that dynamically optimizes your network and links the necessary files. It then pulls the dataset from the specified network drive (instead of

your local machine).

After setting up one of these and testing your network performance you may decide that the speed and ease of use of the **First mode** is really where you want run your network. To overwrite your previous (second mode) changes go back to the data server (main file location) machine and run the COPY_A.BAT file (in your server subdirectory \PROGRA~1\R&B_WIN\DATA). Before running this batch file, first determine the network location of the machine you want to update because you may need to change (copy and change the file COPY_E.BAT) s you may need to change the drive location (within batch file) so the files will be sent to the correct network node.

The only drawback to running in the first mode is that you must remember to update your users data files so they will have the most recent data to analyze and their GIS datatsets reflect the most recent changes. If you set up the batch files to be run from icons it only takes a click on the icon to update the users data files. Give us a call if you have questions.

Work Order Modules

(***Lite*** and ***Complete*** versions plus Shop Work Orders)

Road & Bridge IMS has two Work Order Systems plus a Shop Work Order system for documenting major maintenance work on your equipment.

Lite Work Orders provide near instant creation of a work order because only the key line item is created; all other line items are added when the work order is completed (after you know the actual labor hours, equipment time and materials used. To utilize this system, first, create the work order with the crew leader, key piece of equipment and key material. Add a description that encompasses the other *who, what, when* and *how* of the work order - and your done. When the work has been completed use the documented information to close the work order from the Cost Accounting Module.

The Browse Work Order window provides a look at Open or Closed Work Orders. Reports and Work Order Forms are available on buttons. To add a Work Order press Function Key 8 (PF8) or click the blue PLUS on ToolBar.

After the Work Order has been used and it the form for data entry (Cost Accounting Screen) the first step is to close out the work order and assign its costs to an appropriate Project. To find the Open Work Order (in the Cost Accounting Screen) enter OWO - (WorkOrder #) (Open Work Order) at the Cost Accounting Browse Window.

The work order will immediately be found in browse window. The next step is to edit this record and change any items (employee and/or hours worked, equipment and/or hours/miles, material and quantity) and assign it from an OWO (Open Work Order) to a specific Project that you want to collect the costs under (this also closes the Open Work Order and attributes its costs to a specific Project).

Next, save the record. If other persons, equipment, materials were utilized (as written on returned work order) then COPY this original record and change any item which is different (employee and/or hours, equipment and/or miles/hours, materials and units) to reflect the line on returned work order. Utilize the COPY and edit routine for each additional line item on the work order. This will save you many key strokes and will also allow all continuing information on a specific work order to flow to all lines of the work order.

From the one-line work order created you add all other line items after the work has been completed and the labor hours, equipment hours and material quantities are known values.

The ***Complete*** Work Order System (**Create Work Order**) enables you to create work orders with line items describing labor, equipment and material that is planned to be used to complete it. There is no limit to the number of line items on a work order.

Create Work Orders enables you to generate work orders and add an unlimited number of line items to each work order. The work order entry form is divided into two major areas; the top contains global information on the work order and the bottom (white window) contains each detail line item. Movement through the top description (gray area) is provided by using the TAB key.

The Auto Work Order Number button will provide the next incremental work order number, or you may enter your work order number directly. Work date automatically loads the current

date, which you may override. The Road/Street lookup drops into your GIS Road/Street database when you may select by entering the first few characters of the Road/Street name. The Township/Precinct/District button provides a lookup for specific geographic area(s) within your City/County so costs may be automatically collected by this parameter. The Job/Description field and Comment memo field are for descriptions of each particular Work Order.

Movement through bottom (line items area) area is provided by using either the TAB key or ENTER key. The ENTER key (when in a lookup field) tells system to utilize lookup windows while TAB key tells system to move to the right (Shift-TAB moves left) without invoking lookups, automatic calculations and cross reference data lookups.

One method to utilize lookups is to press the ENTER key to move into a lookup field (Labor Code, Task, Eqp #, Inv #); then, enter the first character of, for instance, the Labor Code; then, press ENTER key and automatic lookup is invoked; which brings up the closest match in your Personnel file. This also loads the pay rate and General Ledger fields from you Personnel file (if this information is utilized). The same automatic loading is provided for the Equipment and Inventory fields.

You may also type in the correct Labor Code name (or, Task, Eqp #, Inv#) and the system will load pay rate and default general ledger numbers form your personnel file.

To complete and SAVE each line item you must press ENTER key until the next line item is added - this insures the complete line item is created and saved.

You may increase or decrease the width of any field and the system will remember the setting for future sessions. The fields to the right (past the Material Cost Calculation) are filled automatically from the header information (W.O. #, Date, Road/Street, etc.) and/or from each field lookup (Labor Code fills Labor Rate and default General Ledger Account to be charged when posted to Cost Accounting).

To save the Work Order complete the line item you are working on and start another line item; then press the SAVE button.

The ***Complete*** Work Order System (**Close Work Order**) enables you to close work orders (and, Post to the Cost Accounting Module) and associated line items after auditing/editing for correct usage values (hours worked, equipment hours/miles operated and/or material units).

First, enter the Work Order number (from completed Work Order sheet) and press the TAB key. Next, select the Project Name lookup, as a completed Work Order must be posted to an existing Project.

To set up a project use the Projects & Analysis window. This enables an existing project, that might run for several years (or, only for a week) to accumulate costs of all Work Orders that, when Posted to Cost Accounting, are assigned to a particular Project. This would enable the system to automatically accumulate, for instance, all work that has been performed for a City for the entire year and still account for it on a Work Order basis.

To close a particular line item, or all line items, TAB through the Project Name field into the line items area. The work order and all Open line items will show in lower portion of screen.

If there is a change on number of hours worked, etc. TAB to that field on specific line, or click the field with mouse, and change the item . Then press ENTER , or move to next line item that you want to edit with the up/down arrows on keypad, or click in next line item. so system will recalculate totals.

The reports include

The ***Equipment Maintenance*** **Shop Work Order** Browse window lets you see all Shop Work Orders by Work Order Number, Date work is completed and Equipment number. To edit a specific record, highlight it and double-click left mouse button, or, click the pyramid on ToolBar. The Query button enables you to subset record and find any record by any criteria.

The Update Shop Work Order form is a two part screen. The first section is to describe the equipment that is being worked on, safety inspection, memo, mileage/meter reading and date service is started and completed. Shop work order charges default to the project in the upper left corner of the screen which can be set by changing it at (Browse Data -> Configurations and Setups -> Entity - Fiscal Year - Accounting Defaults -> Department Info - Accounting Setups).

The second section is the white window which is used to detail each line item that is charged to this piece of equipment while it is being serviced. To add a new record press PF8 or click the Plus icon on Toolbar and enter information for the line item. When the line item is saved (OK) it relieves the inventory item that is used.

When you enter the Date Service Completed the Close Work Order button appears which allows you to close the Work Order and post all other costs (labor and/or Outside overhausl, etc.) to the master record.

After Closing the Work Order it cannot be reposted (changed). Before Closing the Work Order you should set the Work Order completion date and click the Safety Updates, Memo and PM Date/Meter Resets TAB if you want to roll forward the Preventive Maintenance Date(s)/Meter(s) on this piece of equipment.

Report Writer (Myreport Library Ops)

The Report Library located at menu option Reporting -> MyReport Library (MyRept2) is designed for two purposes: (1) so you can copy reports you run frequently into this library and make them more readily available, and, (2) so you can design and write your own custom reports.

To copy a report from another library (RB_WIN.TXR, RB_WIN2.TXR, *xx*_Repts.TXR [state specific reports], etc.) and move it into your library requires just a few mouse clicks. First, start Report Writer, open (or *pick*, if library has been previously opened) report library and find the report you want to copy (when a report is run its proper file name is displayed at top of progress thermometer).

After finding specific report, first, write down the name of library it's in and close the library. Next, open your library (MyReport2.TXR) and click on *File -> Import -> Report* and select the report library which contains the report you want to copy. To copy all reports into your library click YES (Copy Report Definitions) as you can delete the ones you don't want (later) or click NO which copies file specs but not all the reports.

If you clicked YES you can delete the reports you don’t' want in your report library, or, if you clicked NO you can reopen the library that contains the report(s) you want to move into your report library and copy/paste them using the the Report -> Copy/Paste functions.

Other ways to move reports into your library are simply go to the report library that contains report you want, copy it to clipboard (Report -> Copy), close library, reopen MyReport2.TXR library and paste it. If report runs then all report specs are available in MyReport2 library so you do not need to go through the import Specs process.

3-D Digital Topographic Mapping (Optional)

The Road & Bridge Integrated Management System utilizes DeLorme© Digital Topos and XMap© Engine, with export module. You may purchase the software direct from DeLorme (www.delorme.com) or integrated with R&B IMS. This software provides you with a digital digital elevation model (DEM) of your city or county. With the XMap© engine you can manipulate the DEM, calculate acreage, print detail maps, determine road profiles (hills and valleys, etc.) and visually determine, for instance, if a culvert is of the correct size, etc.

This option may be added at any time after purchasing R&B IMS©.

File Recovery Utility

The File Recovery Utility will enable you to recover a file or multiple files if you have a disk fault, defective network card, or other, normally hardware associated problem that causes an unreadable data file. The recovery utility is not designed to replace normal, regular backups of your data, but will assist you to recover files when that is advantageous.

Click on the Utilities menu button on Main ToolBar -> DataBase Tools-> Rebuild/Recover Files. After R&B IMS File Recovery Utility starts, EXIT the main Visual Road & Bridge program to insure that no files you are trying to recover are held open by the program; i.e., all files you try to recover must not be accessed by any user on your network, or a local program.

To determine which file(s) have a problem, first click the Tag All button (select all files) and click on the Release button. This will run through all R&B IMS© files to determine which one has a problem, or is being held by the Windows© operating system. If any file has a problem you will normally see an error message – write down the files name and proceed on with the Release step.

If, in the Release step you found a file problem the next step will be on that particular file – only. First, click the Untag All button to unmark all files – then find the file(s) that caused an error message Click to the left of that particular file so a green checkmark appears. This means any following operations will be performed on that particular file, only.

Click the Fix button to fix the file. This step will initiate the creation of a blank file structure (.TPx) into which the defective files records will be audited and copied – Click OK. The next message may tell you there have been errors found and corrected, or, no errors were found. Click Yes to start recovery. The utility will tell you how many records are recoverd.

The Pack button will throw out all records that have been deleted during your previous sessions. It also confirms the integrity of all files it is run on.

The Build button rebuilds all Keys on all files. It also deletes all dBase file indexes (primarily used for communicating to the GIS); these files will be built the first time you re-open that particular file (automatically).

Recurring Work Orders

The Recurring Work Orders module enables you to, if desired, set up particular operations, for instance, hauling 1,000 yards of material to a particular Road or set of Roads over an extended period (days to years), in order to fulfill a pre-determined set of parameters. The best example is, in the Spring of each year you might drive your roads and estimate how many tons (yards, etc.) of gravel need to be hauled to bring each road (segment) back to an optimal maintenance level. This might run for many months. If you set up each Road/Street (Segment) as a separate record and set up the estimated material, labor and equipment use then you are able to track progress on it as work is completed during the year.

Permitting

The Permits module enables you to track and document the permitting process from original application through inspections, permit issuance and the full life of the permit.

Criteria for tracking this information are the application itself, the people involved, physical location for the permit request and inspection information and feedback. We do not include the permit forms because everyone uses their own standard forms. However, your standard forms can be scanned, added and implemented in the reporting suite. Call for a price quote after we see your permits requirements.

APPENDIX

Technical Specifications

You may use any one, or all, of these integrated modules, and, bring the other modules on-line as your time permits. The system is designed for your *real-world* constraints.

Project and Project Analysis Module

Track all department spending any way you desire:
Track by entire County, Township, Road/Street, Segments, Bridge, or, any way you want to! R&B IMS is 100% flexible!

Cost Accounting Module

Two entry modes	Windows style entry screen plus DOS style Quick Entry screen

Fund Accounting Module including Budgeting and Revenue Sources

Track Expenditures by account code and Revenues by source and budget analysis

Cost Center Module

Personnel	Labor costs and personnel management
Inventory	Inventory setup, adjustments and purchase/usage history
Equipment	Preventive Maintenance and Component Analysis
Contractors	Track contracts and accumulate lifetime history of all contractors
Weed Control	Track weed control costs and reporting system
Bridges	Interfaced to integrated Geographic Information System
Culverts	Interfaced to integrated Geographic Information System
Signs	Interfaced to integrated Geographic Information System

Configurations & Setups Module

Commodity Groups	For logical inventory groupings
PM	Preventive Maintenance master File
Project Phase File	For those who use this method of cost accumulations
Report Header	You define where the subtotals are made on the Budget file
Vendors File	Keep track of all vendors, their products quality, etc.

Simplified Road Management Module

Road conditions	Instant analysis by **Surface, Ditching, Signage** and **Visibility**

Built-in (integrated) Geographic Information System or (extension to ESRI© ArcView)

Bridge File	Add your Bridges and link them to the GIS for visual lookups
Culvert File	Add your Culverts and link them to the GIS for visual lookups
Spatial Analysis	Spatially analyze costs by where they were incurred
Roads & Streets	Change road and street names
Sign File	Locate all your city or county signs on integrated GIS
Utilities File	Locate underground utilities on this map and create info database
Visual Editor	Draw new roads and streets as they=re built; add to your dataset
Custom GIS	Call for specific GIS implementations for your city or county

Reporting Module

20+ built-in reports	Custom reports covering **nearly** all reporting needs
Report Writer	Built-in Report Writer so you can write custom reports, if needed

Modules that will be incorporated during 1999

ESRI Extension	R&B IMS will become an ESRI ArcView extension in early 1999
Graphics analysis	Integrated graphics analysis & pictures of Bridges/Culverts

System Specifications

Hardware:

R&B IMS and its integrated GIS will run under Windows 3.xx (16 bit version) on an 80386SX Intel compatible platform with 8 MB of RAM and VGA monitor. We recommend a **minimum** system of; an 80486 (66 MHZ) Intel compatible platform with 16 MB memory, SVGA 600X800 resolution monitor running 256 colors and Windows 95/98 or NT operating system (if you run the 3-D Topo maps they require screen setting of 16-bit High Color). This software, like all other systems, will run better with a faster clock speed and more memory. R&B IMS (Version 6) was initially developed on (and is tested on) 166 MHZ Intel platform with 32 MB memory under Windows© 95.

Our built-in Geographic Information System is a *starter* GIS. If you do not have GIS support it is a very capable *starter* system. If you're already running another GIS then you probably will not need the built-in GIS. CompuLink plans to develop an extension product for ESRI ArcView© which will integrate both environments; in a similar manner to our built-in GIS - but with more functionality.

Any Windows© compatible printer will work. If you have a color printer the same screen colors (on reports) will be printed to your hard copy reports.

The directory (file storage) structure (by default) is:

\Program Files\R&B_WIN	*Road & Bridge IMS executable files (approx 10 MB)*
\Program Files\R&B_WIN\ DATA	*Road & Bridge IMS data (increases as your save data)*
\Program Files\R&B_WIN\GIS	*Built-in GIS (approximately 3 MB)*

R&B IMS does not modify or install any system .DLL files in any other directories on your hard disk. If you elect to Un-Install use Windows Start-Settings-Control Panel routine (WIN 95/98/NT). This will remove all files and registry changes and restore your system to its pre-R&B IMS state.

Backups:

We recommend backups be made on a regular schedule, and that, at minimum, each month you store one backup tape/disk(s) to another location for security, fire or other reasons. Tape backups are your best option because you can backup your entire hard disk automatically and unattended. DVD disks, new to the market, will also store large datasets, sot they are a potential option. WIN 95/98/NT makes many small and incremental changes to hundreds of files every time you run it. The only way to restore the operating system is to restore all of these files to there most recent state; otherwise, you will have to rebuild the whole system to reflect your current working

environment.

The files In subdirectory \PROGRAM FILES\R&B_WIN\DATA will change each time you edit, save or change records. This is the primary directory to run regular backups on. As upgrades are made to the executable files (in \Program Files\R&B_WIN and \Program Files\R&B_WIN\GIS, files in these directories will also change.

Our built-in backup module is available under the File ToolBar option. It creates the industry-standard PkZip compressed data archives. This backup is not meant to replace your normal system backup on tape or other media, but is meant to be used as a supplement to your normal backup routines. A backup of all .TPS files can be done in a couple of minutes to two or three floppy disks (depending on size of your dataset). Instructions for its use are in the HELP screens for this module.

Files:

Accountg(ACC) File	General, Sales and Material Receipts Journal
Accrecdt(ACD) File	Invoice details file
Accrecms(ACM) File	Invoice master (header) file
Bldgperm(BLD) file	Building permits file
Budgets (BUD) File	Storage for your annual budget
Calendar(CAL) File	Calendar (Scheduling) file
Commodity (COM) File	Commodity codes for you inventory system
Contractors (CON) File	Contractors for R&B operations
Culvert (CUL) File	Culvert information, linked to built-in GIS
Deprec(DEP) File	Depreciation calculation file
Details (DET) File	Detail labor, material, equipment and contractors costs
Entity (ENT) File	Information on your department and current Fiscal Year
Equipment (EQP) File	Information on your equipment
Estimatd (ESD) File	Project estimator details file
Estimatr (EST) File	Project estimator master (header) file
GL (GL1) File	General Ledger File
Inventor (INV) File	Starting inventory and standard cost data
Labor2 (Labor) File	Personnel file and standard cost data
Main_Map (MAI) file	Dataset for your city or county built-in GIS
OpCost files	Graphic (Charting) analysis
Phases (PHA) file	Phase file to record work phases
PMCodes2 (PMC) File	Equipment Preventive Maintenance master file
Projects (PRO) File	Information on your projects, roads, segments, etc.
Purchdet (PUD) File	Purchase Details File
Purchord (PUR) File	Purchase Order Master (header) file
Retrdetl (RTR) File	Return materials detail file
Returnor (RET) File	Return materials master (header) file
Reports (REP) File	Report header file to set subtotals for budget reporting
Revenues (REV) File	Sources and amounts of revenues for your operations
Security (SEC) File	Module level security settings
Shopdetl (SHP) File	Shop work order details file
ShopMstr (SHM) File	Shop work order master (header) file
Signs (SIG) File	Sign information, linked to built-in GIS
SurfType (SUT) File	Surface type codes for maintenance cost file
SurfLayr (SUL) File	Surface layer codes for maintenance cost file
TranIn (TRA) File	Inventory Transfer In file

TranOut (TRO) File	Inventory Transfer Out file
Tasks (TAS) File	Work tasks (type of work performed) master file
Types (TYP) File	Types of work tasks performed
Vendors (VEN) File	Vendor file for your materials suppliers
Weeds2000 (WEE) File	Weed control data file
Xcomplaints (XCO) File	Complaints file to record citizen complaints and followup

Other Technical Parameters:

- R&B IMS is designed and built in Clarion8 V5 Enterprise Edition with Data Modeler (a CASE design tool). The generated code is 32-bit, C and C++, and based on both conventional and object oriented programming (OOP) techniques. **R&B IMS** is Y2K compliant.

- R&B IMS data structures comprise:

67 databases (both FoxPro© (for built-in GIS) and TopSpeed© data files)
1,590 Fields
132 Indexes
49 Relational Links
Utilizes Referential Integrity Constraints on relational read/writes

- R&B IMS Database (SoftVelocity) Limits:

File Size:	Limited only by disk space
Records per File:	4,294,967,295
Record Size:	15,000 bytes
Field Size:	15,000 bytes
Fields per Record:	15,000
Keys/Indexes per File:	240
Key Size:	15,000 bytes
Memo fields per File:	255
Memo Field Size:	64,000 bytes
BLOB fields per File:	255
BLOB Size:	Hardware dependent
Open Data Files:	Operating system dependent
Table Name:	1,000 bytes
Concurrent Users per File:	1024

- R&B IMS future enhancements:

- Integrate GPS (Global Positioning Satellite) data so you can track vehicles, live. You'll know where your road graders, trucks, emergency vehicles are at any point in time. This will also integrate with ArcView8 GIS so you=ll have visual record of *where* roads are graded and snow is plowed, etc.
- Integrate other ESRI ArcView8 tools (Spatial Analysis, Road/Street Analysis, Automated Mapping, Facilities Management, etc.)

Our goal is to incorporate other components, systems and subsystems that will improve the overall functionality of **R&B IMS**. We value your ideas. Give us a call!

Sample Forms

Sample forms will help you initially populate your data files. Each form lists the suggested information needed for utilization of the Road & Bridge Information Management System©, but, you do not have to fill in all fields in the data files in order to make the system work. You may also elect to fill in the majority of data fields incrementally, as you work with the system. System will run with very few data files filled. Example: The Equipment file will function with only an Equipment Number, Fuel type, Hrs/Miles, and Meter reading for current Fiscal Year. The other necessary information is a Standard Rate to charge per unit of usage.

Forms start on next page and are on separate pages so you can easily print and make as many copies of them as you need.

Equipment File

Eqp #							
Make							
Model							
Year Built							
VIN #							
1. Fuel (G/D)							
2. Dept #							
3. Our Eqp							
4. Hrs/Mi							
Date in service							
5. Std Rate							
6. Metr Chnge							
Life Expectan							
Purch Cost							
License #							
7. PM Code							
8. Type							
Load Size							
9. Meter FY							
Remarks							
10.Indirect Exp							
11.Rental Rate							
12.Accum Dep							
13.Curnnt Dep							
14. PM Parameters							
15. Component Service Analys							

Fuel type (**G**as, **D**iesel **L**P, etc)
Department number that equipment is assigned
Our Equipment (check, if equipment is assigned to your department)
Is the equipment meter reading based on hours or miles
Standard cost rate (per hr/mi) this equipment cost is based on this fiscal year
Old Meter reading if meter is replaced
Preventive Maintenance code for this equipment (based on how you set up PM Code file)
Use type for this piece of equipment (off-road or other type) used in fuel tax rebate report
Meter reading at beginning of current Fiscal Year, or calendar year
Indirect expense (inventory losses, etc. that you may want to allocate to each vehicle)
Rate that might be paid if this equipment is rented from a third party
Accumulated depreciation on this equipment (not including current year)
Current Year depreciation charge on this equipment
Set up equipment with current meter readings; configure PM codes and parameters
Setup if you want analyze usage for grader blades, filters, tires, tracks, etc.

Inventory – Materials File

1. Inventory #							
2. Location							
3. Commodity							
Description							
4. Measure							
Usual Vendor							
5. A/C #							
6.Std Cost							
7.Reorder Lvl							
8.Reordr Quan							

Inventory number can be either/both alpha and numeric

Use location number(s) if you inventory is located in more than one location. Numbers below 1000 are your inventory locations. Number between 1000 and 2000 are for purchases that do not go through your inventory; i.e. quarry rock picked up a t quarry and directly delivered to road, etc.

Commoodity code for grouping similar inventory items

Normal measurement (quart, pound, ton, each, etc.) for this item

If you utilize the General Ledger this entry will automatically charge this items use to A/C#

Standard Cost is what you want to charge for this item when used – reset it every year

Reorder level will set trigger to print this line item on reorder report – you control when!

Reorder quantity will trigger this quantity on a reorder – you have control how much!

Personnel File

First Name							
Last Name							
Social Sec #							
Job Descript							
Hourly Rate							
Home Phone							
Spouse Name							
Doctors Name							
Doctors Phon							
Hire Date							
Last Review							
Next Review							
1.Labor Code							
2. GL A/C #							
Benefit Hrs							

Enter whatever code you want for each employee
If you use General Ledger this will automatically charge this employee to specified A/C#

Contractors -- Vendors – Customers File

1. Company							
Address							
City, St ZIP							
Contact Persn							
Phone							
FAX							
2.Followup Dat							
3.Vendor Code							

If this is an individual place their full name in this field
Enter date that you need to contact this person – Tab in Browse window will notify you
Enter whatever vendor code you want to use

Bridges File

Bridge #							
1.Features Intr							
Road Location							
Road Segment							
Location							
2. Latitude							
3. Longitude							
Year Built							
ADT							
Year Takn Ovr							
Tonnage Ratng							
# of Spans							
Max Span Lngt							
Structure Lngt							
Road Width							
Deck Width							
Deck Material							
Deck Condition							
Deck Rate							
Superstructure							
SS Condition							
SS Rate							
SS Material							
Deck Life							
SS Life							
Channel Life							
Estimated Life							
Inventy Rating							
Year Implmntd							
Project #							
FAS #							
Priority #							
Hwy District #							
Precinct							
FAS Route							
Class							
Last Inspected							
Hazards							
Tonnage							
Old Number							

Features intersected; name of river, steam, etc that bridge crosses
Latitude is developed in GIS (Utility menu) and is a positive 4 decimal #; i.e., 38.3345
Longitude is developed in GIS (Utility menu) and is a negative 4 decimal #; i.e., -93.2398

Culverts File

Culvert #							
Drainage area							
Road							
Location							
1. Latitude							
2. Longitude							
Hwy District							
Precinct							
Route							
Shape							
Diameter							
Length							
Corrugation							
Cover Depth							
Year Built							
Project #							
Class							
R Number							

1. Latitude is developed in GIS (Utility menu) and is a positive 4 decimal #; i.e., 38.3345
2. Longitude is developed in GIS (Utility menu) and is a negative 4 decimal #; i.e., -93.2398

Signs File

Sign Number							
Sign Type							
Road/Street							
Location							
District							
Replaced Cost							
Installed Date							
Inspected Date							
1. Latitude							
2. Longitude							

1. Latitude is developed in GIS (Utility menu) and is a positive 4 decimal #; i.e., 38.3345
Longitude is developed in GIS (Utility menu) and is a negative 4 decimal #; i.e., -93.2398

Commodity Codes

Commodiy Grp							
Description							

Preventive Maintenance Codes and Data File

PM Code #							
PM Code Desc							
Engine – Meter							
Engine – Days							
Trans – Meter							
Trans – Days							
Hydr -- Meter							
Hydr – Days							
Tracks – Meter							
Tracke – Days							

Set up a separate PM code for each type of equipment. Define the days and meter reading between each type of PM (engine, transmission, hydraulics, tracks). You can, if you like, define separate PM (or multiple PM codes) for each piece of equipment in your department.

Phase File

Phase							
Desciption							

Report Header File

Account #							
Header Desc							
A/C Range-low							
A/C Range-hi							

The Report Header file is used in concert with your General Ledger File and controls how it prints (to screen or on paper) in the Fund Accounting reporting section

Surface Layers File

Surf Layer Desc						
Layer code						

This file is used in concert with the Maintenance Cost file and is configured for KS State Maintenance cost reporting.

Surface Types

Suface Type							

Types of road surface; i.e., earth, gravel, bituminous, concrete, other, etc.

Tasks – Work Descriptions

Local Code							
State Code							
Description							
Standard Cost							
Standard Hrs							
Annual Var							

Accounting Defaults

Purchase Order Starting Number	
Invoice Starting Number	
Shop Work Order Starting Number	
Accounts GL Receivable A/C Number	
Revenue GL Account Number	
Inventory GL Account Number	
Accounts Payable GL Number	
Shipping Expense GL Number	
Invoicing Terms (i.e. net 30 days = 30)	

Sample Account Setups

You should use your local city/county chart of accounts;
This sample chart is included as an example

Sample General Ledger Chart of Accounts:

103.01	Administration Salaries
103.02	Engineering Salaries
103.03	Maintenance Salaries & Wages
103.04	Construction Salaries & Wages
103.05	Clerical Salaries & Wages
103.06	Custodial
103.07	Construction – Part time
108.01	Workman's Compensation
108.02	Group Insurance
108.03	Life Insurance
108.04	Dental Insurance
108.05	Retirement
Old Age, Survivors Disability	
115.01	Unemployment Contributions
201.01	Postal Services
202.01	Telephone Services
202.02	Radio Repairs
202.03	Electricity
202.04	Water
202.05	Heating Fuel
202.06	Sewer
202.07	Garbage
211.01	Data Processing Costs
211.02	Office Equipment Repairs
211.03	Building Repairs
214.01	Road Equipment Repair – Parts
215.01	Road Equipment Repair – Labor
216.01	Road Equipment Repair – Outside Service
217.01	Meals
217.02	Lodging
217.03	Transportation
217.04	Dues, Subscriptions
218.01	Maintenance Work – Outside Contractors
218.02	Snow Removal – Outside Contractors
218.03	Public Notices
218.04	Inspections
220.01	Express, Freight In
220.02	Consulting Fees
220.03	Microfilming/Photostating
220.04	Office Expenses – Misc
230.01	Chemicals – Weed Control
230.02	Chemicals – Other
300.01	Janitorial Supplies
300.02	Technical supplies
300.03	Medical kits, supplies

310.01	Shop supplies
310.02	Plumbing supplies
310.03	Electrical supplies
320.01	Shop tools
320.02	Small tools
320.03	Welding supplies
330.01	Asphaltic material
330.02	Gravel and rock
330.03	Grader blades
330.04	Snow fence
330.05	Concrete
330.06	Culverts
330.07	Steel material
330.08	Lumber
340.01	Equipment fuel
340.02	Equipment grease & oil
340.03	Equipment tires
340.04	Antifreeze
340.05	Miscellaneous parts
340.06	Battery acid & brake fluid
340.07	Filters
340.08	Batteries
345.01	Road equipment rental
350.01	Erosion control
350.02	Other equipment costs
360.01	Signs
360.02	Sign posts
360.03	Guard rails & posts
360.04	Guide posts
360.05	Signals
360.06	Pavement markings
360.07	Highway lighting
360.08	Flares, flags and barriers
370.01	Other hardware
370.02	Tire chains
370.03	Cable
400.01	Land rental
400.02	Building rental
400.03	Land easements
500.01	buildings
500.02	cars
500.03	pickups
500.04	trucks
500.05	Industrial tractors
500.06	Dozers
500.07	Loaders
500.08	Motor graders
500.09	Snow moving equipment
500.10	Street sweepers
500.11	Asphalt equipment
500.12	Radio equipment

505.01 Engineering & technical eqp
505.02 Office equipment
505.03 Spraying equipment
505.04 Saws
505.05 Fuel tanks
505.06 Compressors – welders
505.07 Road drag equipment
505.08 Stoves
505.09 Well equipment
505.10 Power & parts washers
505.11 Spray tanks (weed control)
505.12 Snowplows
505.13 Power posthole diggers
505.14 Sump pumps
512.01 Armor coating
512.02 Grading
512.03 Storm sewers
512.04 Curb & gutter
512.05 Bituminous surfacing
512.06 Concrete surfacing
512.07 Structures, pipes & box culverts
512.08 Sidewalks
512.09 Traffic service
512.10 Street services
512.11 Bridges
513.01 Legal
513.02 Engineering
513.03 Architectural
513.04 Surveyor
513.05 Engineer testing
513.06 Consultant management
513.07 Advertisement for bids
513.08 Appraisers
513.09 Data processing software
513.10 Filing of deeds/records
513.11 Misc capital outlays
513.12 Principal retirement
513.13 Interest payments

Sample Commodity Codes:

10 Grader blades
20 Bridge supplies
30 Building supplies
40 Chemicals
50 Culverts
51 Used culverts
60 Culvert bands
61 Used bands
70 Filters
80 First aid supplies
90 Fuel
Fuel tanks
110 Gravel – Aggregate
120 Hardware
130 Lubricant
140 Lumber
150 Office Equipment
151 Software
Office supplies
Parts
Parts books
Other equipment
Posts
Pumps
200 Radios
210 Shop tools
220 Signs
230 Small tools
240 Snow Fence
251 Steel – I beams
252 Steel – Wide flange
253 Steel – Channel
254 Steel – Decking
255 Steel – Guard Rail
256 Steel – H Piling
257 Steel – Plate
258 Steel – Upper/Lower chord
259 Steel – Sheet Piling
260 Survey Equipment
270 Tires
280 Welding supplies
300 Wrenches
310 Miscellaneous

Preventive Maintenance Codes:

PM codes can be any numeric that you want to use. You can create a unique Preventive Maintenance code for each piece of equipment – you might want to use the equipment number for the PM code. This will be a lot of extra work but it will fine-tune the PM for a specific piece of equipment.

The easiest way to create PM codes is to group the types of equipment; i.e., Cars, pickups, small trucks, dump trucks, front end loaders, dozers, graders, etc. Each grouping would have its own PM code set up by miles/hours and days between ENGINE, TRANSMISSION, HYDRAULICS, TRACKS or TIRES. Whatever is a logical grouping will work.

Report Header File:

The Report Header File determines when subtotals are placed in the Nebraska Form 1 report ONLY.

Surface Layers (Kansas Reporting Model):

The surface layers file is used to track costs as they are layered onto road and Streets. These represent *capital-type* versus *maintenance-type* costs. They are normally represented by a project that represents a specific road/street that you have budgeted for as a capital spending project, versus, normal maintenance on a road or street.

These codes will print on the Kansas specific Surfacing Construction report. You may change the Layer Description but do not change the Layer Code because it is hard-coded to the report – unless you want to modify the report.

Layer Description	Layer Code
Aggregate Binder Base Course	601
Bituminous Base/Surface Course	611
Double Bituminous Surface Treatment – Asphalt for 1st Seal	551
Double Bituminous Surface Treatment – Asphalt for Prime	541
Double Bituminous Surface Treatment – Cover Material 2nd Seal	581
Double Bituminous Surface Treatment – Asphalt for 2nd seal	571
Double Bituminous Surface Treatment – Cover Material 1st seal	561
Light type surfacing	631
Misc costs – Subsidiary grading/shoulders/curb/gutter/etc.	651
Other surfacing	641
Single Bituminous Surface (Prime/Seal) – Asphalt for seal	521
Single Bituminous Surface (Prime/Seal) – Asphalt for prime	511
Single Bituminous Surface (Prime/Seal) – Cover material	531
Single Bituminous Surface (Prime/Seal) – Asphalt for seal	521
Soil Cement	621
Subgrade Modification	591

Tasks (Work Descriptions) Kansas Reporting Model:

These codes are used to report the type of maintenance work performed on streets or roads. You may change the Local Code and/or Description code but do not change the State code as it is hard coded to the Kansas report – unless you want to modify the report to recognize the new code. The State code drive the Maintenance (Spatial Data) Analysis GIS map. You may change the Local Code to a meaningful code for your city/county data input but the State Code is the data linkage for GIS data analysis.

Local Code	State Code	Description
038	1304	Moving equipment
045	401	Push material – maintenance
053	401	Screen material – maintenance
054	1304	Service equipment
055	250	Shop time
064	301	Shoulderwork/Gravel
070	401	Surface repair – Gravel
075	401	Stockpile material
104	104	Replace washed-out aproaches
105	105	Channel maintenance
108	108	Other bridge maintenance
111	201	Top maintenance – gravel
114	904	Mow weeds
ADD	1204	Address systems – Traffic
ADM	250	Administration of projects
AIC	804	Mixing salt
APR	001	Approaches – construction
BI	107	Bridge Inspections
BLDG	1304	Clean-Maintenance buildings
BRCN	102	Bridge Repairs – concrete decks
BRDC	002	Bridge repairs – construction
BRDM	103	Bridge repairs maint – wood
BRENG	107	Bridges – Engineering & inspect
BRWD	103	Bridge repairs - concrete decks
BURC	001	Grading –
CBT	611	Crush blacktop
CLER	250	Clerical in office
CONS	004	Traffic control
CR	1304	Check roads (not snow & ice)
CRI	804	Check roads for snow & ice
CRS	1204	Check road signs
CVBC	002	Culvert construction
CVBM	702	Culvert maintenance
CVEM	700	Culvert maintenance – Earth roads
CVGM	701	Culvert – gravel roads
WCS	904	Spray weeds (our equipment used)
WIND	1204	Wind damage
YD	1304	Yard work at shop

The Maintenance Code system is based on the following code sequences:

Type Cost	State Code	Task Code
Bridge Work	01-113	Bridge & Approach
Patrolling	200-204	111,FDE,FDG, ETC.
Shoulder/Ditching	300-304	064, ETC.
Surface Material	401-404	045,053,070,075, ETC.
Surface Sealing	501-504	SPB,SMBM, ETC.
Surface Patching	601-604	PUMC,SCMC,SMGC,ETC.
Culverts	700-704	CVBM,CVEM, ETC.
Snow/Ice Removal	800-804	AIC,CRI, ETC.
Weed/Brush Control	900-904	114, ETC.
R/W & Fencing	1000-1004	RWEA,RWGR, ETC.
Engineering & Inspctns.	1100-1104	ENBI,ENCN,ENEA, ETC.
Traffic Service	1200-1204	ADM,CRS,GTC, ETC,
Other Maintenance Cost	1300-1304	038,043,054, ETC.

The rightmost digit reflects the type of road surface (0 - 4). 0 is Earthen surface, 1 is Gravel, 2 is Bituminous, 3 is Concrete and 4 is Miscellaneous or other type of surface. An example of the code construction:
Culvert work on a dirt road would be a 700 code
Culvert work on a grave road would be a 701 code
Snow and Ice Removal on a bituminous road would be an 802 code
Snow and Ice Removal on a concrete surface road would be an 803 code.

In order for the Maintenance Spatial Data analysis to work properly you must use the State Codes, but you can use whatever is a meaningful local task code.

Bridge Specific Codes:	**102-113**
Deck Repair - Concrete decks	102
Deck Repair - Wooden decks	103
Structural Repair (other than decks)	112
Painting & other minor repairs	113
Replacing washed out approaches	104
Channel Maintenance	105
Traffic Service	114
R/W & Fencing	115
Engineering & Inspections	107
Other Bridge Maintenance Costs	108

System Security Module

The System Security Module enables you to set up individual user **read, write, add** and **delete** privilege within R&B IMS. The Security module is located under Utilities -> Configure System Security; (hotkeys, Alt -> U F). As security levels increase numerically access under all lower security levels is permitted. The two ways you do this are by:

1. Setting individual User security and/or,
2. Setting individual module security level

User and Module Security Levels are:

Level 1 - Print Reports, Run GIS, access HELP and manuals
Level 2 - Run Executive Information System (EIS)
Level 3 - Administrator definable
Level 4 - Insert (Add) Records
Level 5 - Delete Records
Level 6 - Edit (Change) Records
Level 7 - Administrator definable
Level 8 - SuperUser (Run year end wizards, Database Tools
Level 9 - System Administrator (Add, Change, Delete Security)

Always keep one user at Administrator Level (9). This level is needed to edit the User and Security files. If you do set all users to less than Security Level 9 then you will be locked out of the system (not able to modify any security settings) and will have to restore the most recent backup of your USERS.TPS and SECURITY.TPS files.

You may use any form of data capture documents for your data entry.

On the next page Is sample Cost Accounting/Project Accounting data capture document.

Data entry documents for Fund Accounting are the documents you currently use for purchasing, purchase orders, claim and warrant forms.

Tutorial

General

The ***Visual*** Road & Bridge Integrated Management System© (***Visual*** R&B IMS©) will perform requirements of our RFQ, plus other needs further down the road, with few modifications. (Functionality described in Section2 is referenced to the enclosed Demo so you may demonstrate the functionality our software provides. Only one example is given, to demonstrate the overall functionality, but the same functionality runs throughout our system – call if you have any questions)

Visual R&B IMS© is designed to provide immediate on-screen solutions and definitive reporting for the *Who, What, When, Where* and *Why* questions of asset management. It is designed in a *closed-loop*, fully relational architecture that enables the user to derive *live* definitive information on any asset at any time.

After initially loading (or we will convert your data) all assets (Equipment, Inventory, Bridges, Culverts, Signs, Employees, Vendors, etc.) two screens drive ***Visual*** R&B IMS©. Those screens are the Cost Accounting (WIN and/or DOS) and the Fund Accounting Uses screens. This is a part of the functionality that makes our system the most intuitive in this vertical market. The Cost Accounting screen documents work performed and the Fund Accounting screen documents spending on Purchase Orders, etc.

Visual R&B IMS© has four levels of instant HELP available to the user.

HELP

Level ONE is “bubble HELP” which is available by placing the mouse cursor on most buttons and fields. HELP on that specific button or field will display in approximately one second.

Level TWO is available by click the F1 HELP key on your keypad. This HELP is context sensitive; i.e., it refers to whatever screen is “on top”, or has focus. This HELP goes into the functionality of that particular window.

Level THREE is accessed by click the Help button (to the right of the GASB34 button) on the ***Visual*** R&B IMS© Toolbar and then selecting the How Do I ..... Option. This HELP screen covers specific areas and functions of the system, essentially answering the question of How do I .....

Level FOUR is accessed by clicking the Help button to the right of the GASB34 button, on main ToolBar. This accesses the full R&B IMS Software Uses Guide (in Adobe Acrobat©), which can be printed, or, use Acrobat’s search FIND tool (field glasses) to find key words, etc. The Users Guide also contains forms for different tasks, which can be printed and copied. Our users have developed forms for their local use, and these would be available, also.

The Maroon HELP-PF1 button drops you in to the top level of HELP, listing the functional areas of the system, and also tracking our Updates and Enhancements.

USER INTERFACE

Visual R&B IMS© provides over 50 shortcut keys, which are all documented in HELP. The primary interface control keys are located on the ToolBar (with bubble Help) as ICONS. When any window is accessed the ToolBar ICONS that are active, for that window, turn

BLUE, which means they have control over that window. Because some users like to use these ICONS and other users like to use a different interface control the screens can be controlled by various keys.

For example, to enter a new record in a Browse window, you may click the Blue PLUS on the ToolBar, or, press the PF8 Function Key, or, point your mouse to the white area of the Browse Window and right-click and select INSERT for a new record. Or, select any other option on the popup menu, as Copy the highlighted record, Change the highlighted record, Delete the highlighted record, Query for a specific record with data in a particular field, or SEND the data to a printer, a file (.PDF – Adobe Acrobat©, .HTML – Web Page, .XLS – MS Excel©, .DOC – MS Word©, .CSV – comma delimited file for importing into most other programs).

The SEND button enables a user, with one or two clicks, the ability to export data in another file format for further analysis, or other use. The SEND button is on Browse windows throughout the system.

> The first time you use the **SEND** button, to create a file, you need to type a file name into the File field. The file name should include the subdirectory structure, if you want to save the file in another folder, otherwise it will save in the folder you are working in. Enter a name for the report, with an extension of .PDF, HTML, .XLS, .DOC, or, .CSV for the format you want to save the file in, then press the TAB key, which enables the START button. Be sure to type the correct file extension after the filename period Extension, i.e., Report.PDF if you selected an Adobe Acrobat (.PDF) file type, for instance.

Browse windows, when first opened, are HOT KEYED. This means that when a Browse window is first opened, to find any record, simply enter a character, or two from the keyboard and the first occurrence of that spelling will immediately be found. Entering more characters will find more precise records. If you key in a character or two, then want to look for another record, first, click the UP-ARROW on your keyboard to reset the search engine, then key in anything else you are looking for.

Also, on all Browse windows, the header for each column is a hot key. If for instance, in the Cost Accounting (WIN) Browse you want to find a particular Road or Street, simply click on the header for that column (Road/Street) and enter a couple of characters that the Road/Street name starts with.
(Demo -> Menus -> Main Menu -> Cost Accounting (WIN) button)

Visual R&B IMS© User Interface enables the user to have instant access to all information, anywhere in the system, normally with a mouse click or two. Reports are also available with a mouse click or two via our fourth interactive menu, the Tear Off menu.

The Tear Off menu enables a user to customize our application to the way they work. They create a custom menu for their own use – each user can create their own menu system, simply by holding down the CONTROL button and clicking on any Windows Drop-Down menu option.
(Demo -> Hold down the CONTROL key and click on any Windows Drop-down menu selection)
Example: Hold down CONTROL key and click on Reporting -> Permitting -> Permit Types
Add more buttons, OR point mouse at any button on the Tear Off menu -> Right-click -> Delete button

SECURITY

The System Administrator can tune security levels in two ways. This provides nearly unlimited flexibility is controlling who accesses what, who can update, delete, add records to what module, etc.

The Set User Security button enables you to set up your users under unique log in names and passwords and their privilege level (Press the PF1 key for information about levels)
(Demo -> Utilities -> Configure System Security -> Set User Security -> Double-click a users record)

The Change Module Level Security button enables you to tune individual modules to different privilege levels which then permits you to tune the entire security system to your unique needs.
(Demo -> Utilities -> Configure System Security -> Change Module Level Security -> Double-click a record)

REPORTING

Reports are available under the Reporting button on Main ToolBar. Their are over 300 pre-written reports, plus many ad-hoc reports available after running a Query and the SEND button which enables the user to create a data file in various formats (Adobe Acrobat© .PDF, Web Page .HTML, MS Excel© .XLS, MS Word© .DOC, or, comma delimited .CSV for importing data in to other systems. Reports, under the Reporting button, are organized.

The first time you use the **SEND** button, to create a file, you need to type a file name into the File field. The file name should include the subdirectory structure, if you want to save the file in another folder, otherwise it will save in the folder you are working in. Enter a name for the report, with an extension of .PDF, HTML, .XLS, .DOC, or, .CSV for the format you want to save the file in, then press the TAB key, which enables the START button. Be sure to type the correct file extension after the filename period Extension, i.e., Report.PDF if you selected an Adobe Acrobat (.PDF) file type, for instance.

Visual R&B IMS© reporting suites follows format of the Main Menu columnar structure:

- Reporting (button) on Main Toolbar
  - Projects & Projects Analysis Reports
  - Accounting Reports
    - Cost Accounting Reports
    - Fund Accounting Reports
    - Budgeting Reports
    - Accounting Reports Complete (includes P.O, Invoicing and A/R)
  - Cost Center Reports (operational/asset areas where perform maintenance)
    - Equipment (Asset listing, cost analysis, Preventive Maintenance)
    - Materials (Inventory, Material usage)
    - Personnel (Employee listings, Payroll Reports, Benefits Lite Reporting)
    - Multiple Pay Rates
  - Contractors and Vendors Reports
  - Bridges Reports
  - Culverts Reports
  - Signs Reports
  - Other Assets Reports
  - Quarry Reconciliation Reports (saves hundreds of work hours each year)
  - Weed Control Reports
  - Shop Work Order Reports (Fleet Management)
  - Permitting Reports
  - Configuration and SetUps Reports
  - Asset Management Reports
  - Pavement Management Reports
  - Cost Analysis Reports
  - State Specific Reports (addresses state required reporting requirements)
  - MyReport Library (for all your locally written reports)
  - Report Writer (***Visual*** Report Writer for writing specific reports to your specs)

Note:
Double underlined words (in rest of our RFQ response) reference that particular functional area of your RFQ

Asset Inventory

Visual R&B IMS© maintains all assets in separate tables; i.e., Equipment, Inventory, Bridges, Signs, Culverts, Other Assets, as well as Employees, Vendors, and Fleet Management, and, once classified, all assets you want are included in the GASB34 module which enables both GASB34 functions; i.e., the Depreciation Approach and/or Modified Approach.
(Demo -> Menus -> Main Menu -> Cost Centers Group and GASB34 module)

User definable fields, are used throughout the system for defining lookup tables, and these provide automatic parsing of inputted data - - for validity and "appropriateness of use". Lookup table data entered by user configures system to your needs, requirements and specifications.
(Demo -> Menus -> Main Menu -> Cost Accounting (WIN) -> Double-click on record -> Click Project button)

Separate and Full asset inventory tables (Equipment, Inventory, Bridges, Culverts, Signs, Other Assets, Roads) have capabilities beyond simple listing of those assets. Most asset tables are linked to:

- Live cost data for current (and user selectable) Fiscal Year
- Referenced (by latitude/longitude) to GIS for spatial reference
- Linked to pictures of that asset
- Linked to reference documents (as the Millennium MUTCD, USDOT Bridge Coding document, FEMA Rate Tables, etc.)
- Provide profile descriptive information of that asset
- Linked to the GASB34 module for providing the Depreciation or Modified Approach
- Maintain inspection schedules
- Complete reporting suite for tracking, documenting and scheduling asset maintenance

(Demo -> Menus -> Main Menu -> Bridges -> Double-click on record -> Click Maintenance History TAB, View Bridge)

The Roads Table links all fixed (fixed spatial position) assets with all other associated assets and also links each asset back to the work management function (Cost Accounting, and/or Work Order) that initiated that cost increment.

The single button (in center of Main Menu in Management section) pulls together all spatially related assets under one view. Assets may be viewed separately in their table (Bridges, etc.) but the Roads button provides a single point of entry. Our design philosophy is based on the premise that all assets have a related spatial address; i.e., a Road or Street (or adjacent to a road/street) location, as well as the spatial (latitude/longitude) reference.

After selecting a particular road (user definable road and/or segment of a road), an additional mouse clicks drills down to, for instance, the Bridge table (listing all bridges that are located on this road, or road segment) - - - an additional mouse double-click selects a particular bridge, and one more mouse click shows the cost, maintenance and inspection history for that particular bridge. A double-click on a cost record in the Maintenance History browse window brings up the Cost Accounting record for that particular cost increment. This relationship is just one example of how ***Visual*** Road & Bridge Integrated Management System© relates data to reality.
(Demo -> Menus -> Main Menu -> Bridges -> Double-click on record -> Click Maintenance History TAB, View Bridge)
Asset Inventory modules are linked with our GASB34 module so you may import whatever asset records you desire, into the GASB34 module, for further analysis under the GASB34 rules for Depreciation and/or Modified Approach - - -or we will set up the initial GASB34 assets at the same time we do your data conversion. (You need determine your grouping nomenclature, as per GASB34 guidelines, i.e., (Class, Network and SubSystem).

Visual R&B IMS© also have a depreciation module linked directly to the Equipment Assets table for depreciation calculations on equipment. This module works independently of the GASB34 module as

some of our county's don't run the GASB34 module in their department; i.e., they furnish a list of their maintained assets to the County Clerk and Auditor, who fulfill the GASB34 requirements. Our system works both ways, and also lets you run certain asset groupings as depreciable assets and others under the Modified Approach, all concurrently.

Visual R&B IMS© is capable of handling all infrastructure type of Roads (and segments), Streets, Bridges, Culverts, Signs and Other Assets (as well as other associated information) because the system tables are populated with the information you enter to classify those assets in any manner you work with them. An example of classification of a Road or Street (segment) can be seen when looking at a record in that table. A Road, for instance, can be classified by:

- The Road or Street Proper Name and an Alternate Name
- Maintenance Facility, Grader Operator, etc. responsible to maintain it
- Commissioner's District the Road is located in
- Township the Road is in
- Road Segment Length
- The From and To points the road runs
- Road/Street Surface Type
- Subdivision Road is Located in
- Government Entity who owns Road/Street you maintain; i.e., City, Federal Govt., etc.
- Master Planning group
- Current Work Planned
- Cart Road #
- Average Daily Traffic (ADT) and date of count
- Road/Street Classification (Arterial, Collector, Local, etc.)
- Right-of-Way notes
- 911 From and To Signage
- Last Inspection and Next Inspection dates and Inspection results
- Unlimited memo field for collecting whatever freeform data you desire

AND (*the real plus for all system users*)

All of these classifications (that describe your road/street and/or segment) are dynamically linked to a complete Cost, Maintenance and Inspection history of each individual asset that's located on or adjacent to that particular road/street (segment).

(Demo -> Menus -> Main Menu -> Roads -> Double-click on record to view classifications and other data fields)

Visual R&B IMS© is designed, from the ground up, as a fully relational system that maintains your details automatically; i.e., one entry is used in multiple instances. After initial population of your Assets, two (2) screens drive the entire system; the Cost Accounting screen and the Fund Accounting screen. This tight integration guarantees a friendly and functional user interface because the same entry data is used in multiple locations, lookups, browse windows and reports. Our implementation of the relational model frees users from errors which can be induced by multiple entries of the same information in multiple modules.

Visual R&B IMS© Fund Accounting – Lite system is built to synchronize with the County Pentamation Fund Accounting and Payroll System. The County Fund accounting system maintains, for instance, Purchase Orders at the total level; i.e., total of all line items on a particular Purchase Order, while our system maintains the line items of each Purchase Order. This enables the user to instantly tract all purchases and usages of material items.

(Demo -> Menus -> Main Menu -> Fund Accounting Uses -> inventory Purchases and add new record by pressing the F8 Function key, or, clicking the large blue plus on the ToolBar, or, right-clicking mouse and selecting insert)

(Our system contains over 50 hot keys [documented in HELP – PF1 key]. Most tasks can be done using different key sequences, only the mouse, only the keyboard, or, a combination of both - - this increases user flexibility as some users favor the mouse while others favor the keyboard, or combinations of these tools)

An example of a Purchase Order transaction could consist of:

- A requisition for these materials is cut, for instance, on
    - 12 W1-1L Left Turn Signs
    - 24 R1-1 Stop Signs
    - 6 W2-24 T-Symbols
    - 100 12' posts
    - 100 assembly components

From your Pentamation© Fund Accounting system this purchase becomes a Purchase Order with the above line items. Pentamation© tracks the total purchase order from start through payment and preserves the total dollars that cleared the P.O., vendor history, etc. But, in the Infrastructure Management System (Sign Department) you need the detail of the purchase posted to the individual inventory line items to increase their balances. This is the functionality that ***Visual*** R&B IMS© Fund Accounting – Lite provides, plus it provides a check figure for that particular Purchase Order and for each individual Inventory line item that correlates with the Pentamation© total cost figure for that line item.

Visual R&B IMS© Cost Accounting provides the inventory relief side of the entry (subtracting from inventory) when a sign is pulled out of inventory, assembled and placed on a particular road. This particular sign is automatically tracked from the point of purchase, when it enters inventory, when it is pulled out of inventory and when it's assembled and placed on a particular road location (also by spatial location).

All tracking (purchase, adding to inventory, pulling out of inventory and placing on a particular road) is automatically performed by software logic. The user makes entries in Fund Accounting – Lite to represent the purchase and the inventory is updated automatically. When the sign is later used a Cost Accounting entry is made to take the sign out of inventory, log hours worked (which can also flow automatically to a payroll hours worked report) by the individual(s) doing the work, log run time on the vehicle(s) used, and other associated costs with the sign being placed on a particular road location.

The transaction (above) adds a cost layer to that particular sign that is located on a particular road, decreases the inventory level and moves that particular inventory closer to a flagged level for re-ordering that particular type of sign - - - all automatic and transparent to the user.

Visual R&B IMS© supports the use of assets for CIP Budgeting and Planning as each asset maintains (automatically) its own cost and maintenance history, inspection history, inspection dates and results of those inspections. This is correlated with the Costs which have been incurred since the last inspection. The GASB34 module plays a part at this point, as the Modified Approach methodology provides this functionality also.

In the GASB34 module, utilizing the Modified Approach, you may set up global parameters for Spending Forecast and extrapolating from the historical cost of each asset plus factoring in the inflation rate expected for the forecast year.
(Demo -> Main Toolbar -> GASB34 -> Modified Approach -> SetUp Global Parameters for Spending Forecast)

You may also "Freeze" any individual asset (so it won't be recalculated) and enter a dollar amount for forecasted spending for the next forecast period. This provides for those assets that you know have to have a major expenditure over the next reporting period.
(Demo -> ToolBar -> GASB34 -> Modified Approach -> Audit & Maintain Spending Forecasts -> double-click a record)

After opening an asset record (double-click on an asset record), clicking the Spending Since Last Inspection TAB shows you the spending on this particular asset since its last inspection.
(Demo -> ToolBar-> GASB34 -> Modified Approach -> SetUp Global Parameters for Spending Forecast -> click TAB)

A memo is attached to each asset to record any pertinent information in relation to this asset, capital spending, GASB34 compliance, etc.

Also, from the main Browse Assets window the Global Update button enables you to set a threshold date and, clicking the Current & Previous Year Spending, generate the current and previous years spending to maintain each asset. Reports are available on main ToolBar.
(Demo -> Main ToolBar -> GASB34 -> Modified Approach -> Audit & Maintain Spending Forecasts).

The GASB34 Depreciation Approach enables you to depreciate those asset groups you do not run under the Modified Approach. This approach requires the asset Cost, Date bought into service and Service Life. This module also contains a utility to calculate previous year's accumulated depreciation, if needed.
(Demo -> Main ToolBar -> GASB34 -> Depreciation Approach -> Select Asset Groups to Depreciate)

The GASB34 Asset Groups are maintained under the Browse Button -> Add, Change, Delete Asset Groups. Individual Assets are maintained under the Browse Button -> Add, Change, Delete Individual Assets.
(Demo -> Main ToolBar -> GASB34 -> Browse button on Main ToolBar)

Visual R&B IMS© enables the user to manage a hierarchical and linear relationship between assets as well as an ad hoc (user searchable and reportable) relationship among assets.

An example of a hierarchical relationship is the Roads button that lets the user drill down to a particular road, then to all signs on that road, then to a particular sign and finally to a recap of all maintenance performed on that asset in a selected Fiscal Year.
(Demo -> Menus -> Main Menu -> Roads button -> Double-click on a Road -> Select appropriate TAB)

An example of a linear relationship, under full control of the user would be initiating, for instance, sign numbers. The sign inventory, when taken as driving, for instance, East on a particular road, would create a sign number that starts with "S-" to represent a sign asset, followed by the road number/name, for instance "CR322", followed by the mile market, for instance "1.2" for the mile marker, followed by "E" for the EastBound lane, followed by anything you would like to use to represent this particular sign. A complete sign number could look like this "S-CR322-E-1.2".

The users is in full control of the naming conventions for their assets, but, a meaningful asset number will benefit everyone for all time. We provide the technical assistance as part of our overall software maintenance agreement (copy attached). The asset numbering sequence is what controls the linearity (sequence) of records in a browse window, reporting, etc.
(Demo -> Menus -> Main Menu -> Signs -> Double-click on a sign or add a new one [F8 or Blue PLUS or Right-Click)

Our imaging module is linked into all asset tables and each Asset Record has a button on it to select a picture of that asset with one button click. The asset number relates a particular asset picture, or pictures, to that asset. The data folder structure for images is:

Data Folder
Images
Bridges
Culverts
Other Projects, etc.
Equipment
Noxious Weed ***Visual*** Reference Library (for Weed Control Module)
Signs

(Demo -> Menus -> Main Menu -> Bridges -> Double-click on a Bridge -> Click View Bridge button for picture; you may also add as many pictures of each bridge as desired)

Maintenance Management System

Visual R&B IMS© provides different ways to develop annual work plans and budgets (A-F):

A. Utilizing the GASB34 Modified Approach (*Global Asset Management*)

GASB34's primary goal with their Modified Approach is to:

(1) Locate, identify and assign a unique Asset Number to all assets you manage
(2) Put all assets on a regular inspection schedule
(3) Document those inspections and their resultant rating
(4) Budget for spending on those assets (and also their asset group) in relation to the inspection rating
(5) Document your remedial action, maintenance and costs to bring that particular asset back to a passing inspection rating.

This is a closed loop system that should not allow any asset to "fall through" the scheduling and follow-up process. ***Visual*** R&B IMS© follows these guidelines and adds other gauges so the user can implement differing methodologies on individual assets in asset groupings.

Visual R&B IMS© provides the Global Asset Management approach in the following manner with our GASB34 module. After locating, identifying and assigning a unique asset number to each asset, asset groupings are defined as per your needs and your assets are identified by the grouping they belong in. This is all done in our software, or can be done at the time of data conversion so you do not have to key in any records.

The first button on the Modified Approach: Capital Assets Management window is BACKUP. Always backup your data (it takes a second) before proceeding. The RESTORE button on the bottom of window enables you to restore the data the exact point it was in when you backed it up. This module enables you to "what-if" forecasts with your grouped asset data so you can fine tune your spending forecasts.
(Demo -> GASB34 -> Browse -> Add, Change, Delete Asset Groups -> Double-click record -> Click Summary TAB -> Double-click on a record to view or change its information)

After setting up your Asset Groupings (by Class, Network, Subsystem - - don't blame the writer as this is GASB34 language) you're then ready to begin using the Modified Approach to forecast spending, manage inspections and results, scheduling and documenting your spending on each asset - - - nearly all this is automatic in our system.

Next, in the GASB34 module, select Modified Approach, and click Setup Global Parameters for Spending Forecast. Select an asset grouping and enter a percent (the % flag is added) spending, of historical cost, you think will be necessary to maintain the asset in functional order during the next year. Also, enter the forecasted inflation rate expected during the next year. This provides the parameters for a Global forecast for spending needed to maintain this asset grouping.
(Demo -> GASB34 -> Modified Approach -> Setup Global Parameters for Forecast -> Double-click record)

After setting parameters for each of your Asset Groupings you're ready to click the Update Asset Spending Forecast button which recalcs the forecast on all records *that have a historic cost base entered*
(Demo -> GASB34 -> Modified Approach -> Update Asset Spending Forecast)

Next, click the Audit & Maintain Asset Spending Forecasts and double-click on an asset that has a spending forecast (the cost basis must be entered before a spending forecast can be calculated as the calculation depends on the cost basis). The forecasted dollars are based on the historical cost and the percentage forecasted spending and the forecasted percentage inflation during the year of forecast.
(Demo -> GASB34 -> Modified Approach -> Audit & Maintain Spending Forecast -> Double-click a record)

Reports are available on the ToolBar -> Reports -> By Modified Approach, or, on the Setup Global Parameters for Spending Forecast button -> Send To button. This button, which is on Browse windows throughout ***Visual*** R&B IMS©, and its associated modules, enables the user, with one or two mouse-clicks, to send the data, in that browse window, to a printer, or generate a .PDF (Adobe Acrobat©), .HTML (web page), MS Excel©, MS Word©, or .CSV (comma delimited) file. This

functionality enables the user to send the data, in native file format (.XLS, .DOC, .PDF, .HTM) to another user for their analysis and use in their favorite software tool.

> The first time you use the **SEND** button, to create a file, you need to type a file name into the File field. The file name should include the subdirectory structure, if you want to save the file in another folder, otherwise it will save in the folder you are working in. Enter a name for the report, with an extension of .PDF, HTML, .XLS, .DOC, or, .CSV for the format you want to save the file in, then press the TAB key, which enables the START button. Be sure to type the correct file extension after the filename period Extension, i.e., Report.PDF if you selected an Adobe Acrobat (.PDF) file type, for instance.

B. Utilizing the GASB34 Modified Approach (*Individual Asset Management*)
The exact same approach, as described in the Global Asset Management section (above) can be instantly changed to an Individual Asset Management basis by selecting those assets you want to manually set forecasts on - - - - by clicking the Freeze Record box

This enables you to globally forecast maintenance spending on majority of your assets, while manually entering the forecasted spending on specific assets. Reporting functionality is the same. In our GAB34 module under the Modified Approach you have Global and Individual control of all your asset spending forecasts which then provide the budget needs for that particular year. Your also have control of the inspection schedules and record the inspection results, by your parameters (alpha and/or numeric). Ad hoc searches and reports can then be generated as per those particular needs on that day. Reports are available under the Reports button on Main ToolBar.
(Demo -> GASB34 -> Modified Approach -> Audit & Maintain Spending -> Double-click record and Freeze it)

C. Utilizing Recurring Work Orders
Another method for setting up an annual work plan is to create a Recurring Work Order for each of the specific assets (for the next year, day, week, month, or any period of time) you want to track in this particular Recurring Work Order. Reports are available on window.

This method enables you to set up a Work Order for each asset, set its priority level, specify fiscal year, track percentage of completion of your estimate, track dollars spent for materials, labor and equipment, as well as hours worked, equipment hours utilized and material units.

This method provides direct control over your asset forecasts and works independently of the GASB34 module. Reports are located on the Browse window.
(Demo -> Menus -> Main Manu -> Recur W.O. (bottom center of menu) -> Double-click a record to edit)

D. The Project module also enables tracking of specific projects (a project can be anything for any period of time). You can, for instance, create a project for all Bridge work, for a specific type of work performed on a specific Bridge, or any other combination of reporting and operations tracking you need. Reports are available under the Reporting button on Main ToolBar.

The Project Module provides full reporting, control and instant progress feedback, of all operations performed under that project. To set up a project all you need is the name, which can be any 30 character alphanumeric - - the shorter and more descriptive, the better. Depending on the Project scope and type of project you many want to provide more information – which can be added at a later date, whenever available. (Yes, our software is designed for the real world - - where not all information is available at the beginning of a project).

You may set up a budget (including labor, material, equipment and contract costs, plus, the number of labor hours and equipment hours you forecast for completion of the project).
(Demo -> Menus -> Main Manu -> Projects & Analysis -> Double-click a record to edit)

Our Project Estimator assists in establishing the cost basis of your forecast (runs similar to a spreadsheet) and also provides the estimation of labor hours, equipment hours and material units. Your Estimate, once completed, can be added to the project with a mouse click. You may revise the estimate at any time and re-establish the forecasted cost basis for your project, with a mouse click. Reports are available under the Reporting button on Main ToolBar.
(Demo -> Menus -> Main Manu -> Project Estimator)

E. The Work Force Planning (WFP) module provides instant analysis of live data, on: •
Road/Street Surfaces by Type, and mileage (graph)
- Hours Worked (Regular and Overtime) for any Fiscal Year (graph)
- Breakdown of Work Tasks cost (directly equates to hours worked) for each Zone
- Spatial breakdown of work tasks by Zone (GIS spatial data analysis)
- Projects forecast (use built-in Estimator (labor, material, equipment, and WFP) (report)
- Analysis of overtime worked and skills utilized for future work force planning (report)
- Work by task, discrete tasks performed and average cost per task (report)

(Demo -> Menus -> Main Manu -> WFP (Work Force Planning))

F. For Pavement Management Budgeting and work planning the Roads button on main menu provides a view of all pavement surveys on one screen by clicking the View All Roads/ Streets button. This view provides a look at the last segment surveyed on each road or street. While viewing, you can "drill down" for a better view of specific roads/streets by putting the mouse cursor on a blank area of the survey screen and right-clicking -> select Zoom-In. To determine what road or street a particular graph bar represents, put the mouse cursor on that bar. Reports are available under the Reporting button on Main ToolBar.
(Demo -> Menus -> Main Manu -> Roads -> View all Roads/Streets)

Green graph bars represent a PQI (Pavement Quality Index) of 2.5 to 4, Orange bars represent a rating of 1.5 to 2.5 and Red bars represent a rating below 1.5. The higher the rating number (.01 to 4+) , the better the pavement quality.

To look at a particular road or street, from the main RoadStreetFile Browse window, double-click on the County Rte 299 record and select the Pavement Mgt button. This graph view represents all the segments that have been surveyed on this road (or segment) and graphically go back in time (looking at the 2.25E bars) as you look back into the graph. Placing the mouse cursor on that group of bars brings up a bubble help with the numeric values of each of those surveys. The Green number in the bottom-center of graph screen is an average PQI over all surveys performed on this road, or segment of road.
(Demo -> Menus -> Main Manu -> Roads -> Double-click on the County Rte 299 record)

Clicking the PM Manual opens, in Adobe Acrobat©, the manual for our Pavement Management module, based on the Minnesota DOT Pavement Distress model; a derivative of FHWA DOT. We implemented the module to run either automated, or in manual data collection mode. Data capture documents are included in the ***Visual*** R&B IMS© User Manual. Several of our client counties are getting their Pavement Surveys done during the summer, utilizing Civil Engineering students on cooperative programs with their State DOT and Universities. A program like this will insure uniform pavement surveys with little out-of-pocket cost to the county. Reports are available under the Reporting button on Main ToolBar.
(Demo -> Menus -> Main Manu -> Pavement & Non-Pavement Mgt -> PM Manual button)

G. The Fund Accounting module includes Budgeting which enables you to set up your General Ledger line items, track 3 years budgets (previous, current and next years), do live lookups on each General Ledger Line Item and track Budget Amendments. The budget module works in conjunction with Fund Accounting and tracks every dollar spent against its General Ledger number. Reports are available under the Reporting button on Main ToolBar.

The Fund Accounting module is Multi-Fund so you can track spending on any General Ledger item against its related Fund. Reports are available under the Reporting button on Main ToolBar.
(Demo -> Menus -> Main Manu -> Fund Accounting Lite section -> Budget button and Sources button)

Instant on-screen Budget vs. Spending, for all Fund accounts, is available by clicking Menus -> Dashboard -> Budget and click the Calc Variance Analysis button. The opening screen provides a summarized view of all your Fund Accounts, by Annual Budget, Monthly Budget.
Reports are available under the Reporting button on Main ToolBar.
(Demo -> Menus -> Dashboard Manu -> Budget button -> Calc Variance Analysis button)

Instant on-screen Budget vs. Spending, for all individual Fund accounts, is available by clicking Menus -> Dashboard -> Budget and click the Calc Variance Analysis button. The opening screen provides a summarized view of all your Fund Accounts, by Annual Budget, Monthly Budget, Annual Spending and Monthly Spending. Reports are available under the Reporting button on Main ToolBar.
(Demo -> Menus -> Dashboard -> Budget -> Individual Funds Analysis button -> Select Fund and Double-click)

Visual R&B IMS© enables you to perform annual work plans and performance budgets in several different ways (as described above). Your may use one (A-G) methodology, or any combination of methodologies to develop management control of your operations.

Organizing and balancing resources to provide full coverage for all scheduled and un-scheduled work works transparently with the above listed modules. Examples for GASB34 (A-F) follow.

Utilizing the GASB34 Approach (Reference A & B in previous section)
After an asset is classified as a GASB34 asset, with its historical cost, date in service and service life established, the asset is ready to depreciate under GASB34's Depreciation Approach.

For better asset control, use GASB34's Modified Approach. As implemented in ***Visual*** R&B IMS©, there are few user interventions necessary (other than running reports, when desired) to:

- Automatically track spending on the asset
- Determine prior year maintenance spending as compared to current years maintenance
- Forecast needed spending (as per inspection criteria, etc.)
- Compare forecasted spending to current year spending
- Schedule Inspections
- Maintain inspection results

(Demo -> Main ToolBar -> GASB34 -> Modified Approach)

Recurring Work Orders (Reference C in previous section)
Recurring Work Orders are designed for setting up specific Work Orders that run for, normally, longer lengths of time, than standard work orders (Work Order module). Recurring Work Orders enable the user to:

- Establish a work requirements schedule for maintenance of specific assets (or groups)
- Follow all work performed under that Recurring Work Order
- Establish the over budget for that Recurring Work Order
- Immediately know how much of the scheduled work is performed
- Change work order requirements, anytime (Labor, Material and Equipment estimates)

(Demo -> Menus -> Main Menu -> Recur W.O. -> Double-click on a record)

Visual R&B IMS©'s Project Module (Reference D in previous section) enables the user to establish a project on anything; replacing one culvert, replacing all culverts in Fiscal Year, maintaining cost controls on the maintenance of one building, or all buildings. The Project is user definable, so it is anything, and runs for any length of time that the user desires.
(Demo -> Menus -> Main Menu -> Projects & Analysis -> Double-click on a record)

A project is a control tool for managing whatever asset(s) you define. It enables automatic analysis, at any time, of the budget for the project compared to the actual operational costs for that project; i.e.

Labor Hours and Cost to budget, Equipment Hours and Cost to budget, Material cost to budget and contracts to 3rd party vendors to budget. The assimilation of this information is automatic and a project may be analyzed with a couple of mouse clicks, a graph generated to represent Actual to Budget Spending with a couple more mouse clicks, or, the detail cost records exported to (.PDF, .HTML, .XLS, .DOC, or CSV for import to other software for further analysis).

The Project Estimator provides a tool for estimating projects by Labor (Hours & Cost), Material (by units and cost), Equipment (by hours and cost) and third-party contracts. After a project is estimated it then provides information on Work Force Planning requirements for the period Project is scheduled. This information, in conjunction with our Work Force Planning report provides a "live data" view of your current and future operational requirements.
(Demo -> Menus -> Main Menu -> Project Estimator)
(Demo -> ToolBar -> Reporting -> Projects & Project Analysis Reports -> Estimator Report)
(Demo -> ToolBar -> Reporting -> Cost Centers -> Personnel – Work Force Planning Report)

Pavement Management (Reference E in previous section) provides a historical view of all segments that have been surveyed on a particular road or street. This graphic view is enhanced by running a report that relates pavement survey results with actual operational spending over a period of time. Prioritized, by Survey results, reports can be run.
(Demo -> Reporting -> Pavement Management Reports)

Fund Accounting (Reference F in previous section) provides for budgeting and control of all spending in each fund your department utilizes. Instant, on screen analysis of each fund (or all in total) provide, monthly and annual, analysis of your spending.
(Demo -> Menus -> ToolBar -> Budget -> Calc Variance Analysis button)

Visual R&B IMS©'s Complaints Management module enables you to document, disseminate to appropriate employees, manage costs on and maintain comprehensive records of all complaints from citizens on any asset you maintain. When the Complaints Window opens any records in the window are marked by a Red X, which means they are open complaints that need to be solved. They remain open until the necessary work is performed and they are signed off as completed.
(Demo -> Menus -> Main Menu -> Complaints -> Double-click on a record)

A Complaint and information collected to help you manage your assets, would look like:

Action	Resultant information generated
Citizen initiates a complaint	Record of complaint is entered previous history of complainant is checked history of road/street is checked Complaint is issued Date & time of complaint is logged
Print complaint - issue to person responsible to work on it	Date & Time assigned out is logged A mouse click also generates a work order, or click Print button to print highlighted complaint
Employee assesses complaint and takes corrective action(s)	
Employee(s) report what was done to solve complaint, or, possibly Initiates a new Project	Work records report hours worked, material used and equipment time which adds a cost layer on whatever asset is worked on

Information generated on a Complaint, as it flows through ***Visual*** R&B IMS©, would include:

- Complaint – Who — Feedback on complaint status; i.e., phone call when complaint closed
- Complaint - What — Complaints, when viewed from a macro perspective provide a picture picture of the overall functionality, status and serviceability of the particular assets; i.e., if a particular asset sustains many complaints a decision on the viability of that asset should be made

- Complaint - When — When was it reported, assigned to an employee and solved
- Complaint – Where — What event caused the complaint to be filed, related to storm, etc.?
- Complaint - Why — Was the complaint in relation to other events – is the person who filed the complaint a "notorious" complainer? If so, you have the previous history of complaints to respond - - at the time complaint is filed, not a few days, or weeks later

A record of complaint(s) by a citizen on a specific asset is also, sometimes, related to other assets that are in spatial proximity; i.e., if the complaint was for a plugged culvert it takes one click to see all complaints by service type, on a particular road, by a particular citizen. If it is a recurring complaint on this culvert then one needs to look closer at the drainage area, condition of the culvert, ditching, etc. that has a direct affect on the complaint. All of this information is immediately available at the time the complaint is initiated.

Cost layers are added to the asset in question, so analysis of that asset would provide a complete history of maintenance on the asset, including costs, resultant type of work performed and inspection results over the time period analyzed. Is the asset in a subdivision that has other, similar types of complaints, is the asset one that a developer has recently turned over to county maintenance – and do you need to document the costs in order to establish a claim on the developer ..... our system lets you, with just a mouse click, or two, redirect the thrust of any complaint, or other ongoing operation so it will collect more relevant information for management and control.
(Demo -> Menus -> Main Menu -> Complaints -> Double-click on a record)
If a new project is initiated: (Demo -> Menus -> Main Menu -> Projects & Analysis -> F8 (function key 8))

Work by Project

After data is collected, reporting suites provide analysis of labor hours and cost, Equipment hours and cost, material units and cost and any related 3rd party contractors cost - - - on any asset, over any time period. One, of many reports, is the Active Project report (ToolBar - > Reporting -> Projects & Project Analysis Reports -> Active Projects, which compares actuals to the forecast/budget you have set for each project. This information is then used to determine work scheduling, workforce needs and seasonal fluctuations.

This (one mouse click) report provides summary level information as described above. This information, depending on when it is run, can provide intra-year information on all departmental activity, or, inter-year information, or year end information on all departmental activity.
(Demo -> ToolBar - > Reporting -> Projects & Project Analysis Reports -> Active Projects)

Work by task

This report provides information on differing work tasks (as per you classification); i.e., cleaning culverts, ditching, operating grader, etc., of Labor and Equipment hours worked and material costs and is date sensitive, so you can globally analyze all operations. This information is then used to determine work scheduling, workforce needs and seasonal fluctuations.

Other reports provide different looks at different assets; i.e., a user can slice-and dice data any way desired, or write an ad hoc report, with any data, with the ***Visual*** Report Writer.
(Demo -> ToolBar - > Reporting -> Projects & Project Analysis Reports -> Task Summary)

Accounting Reports
(Demo -> ToolBar - > Reporting -> Accounting -> Cost, Fund, Budget and Accounting Complete)

Cost accounting reports look at Labor, Material, Equipment and Contractors cost that are applied in maintaining your assets. These reports reflect work applied to maintain your assets.

Fund Accounting reports look at Purchased items (inventory and non-inventory) that are purchased to provide the necessary labor, material and contract payments to maintain your

assets. These reports represent the money spent to maintain your assets. These reports provide the line item budget and actual spending (with percentage of) to reflect where the department is in respect to their budget for each General Ledger line item.

Cost Center Reports

(Demo -> ToolBar - > Reporting -> Cost Center Reports)

Equipment Reports provide analysis of spending to maintain the asset, run times and analysis of runtimes to the standard cost per hour (or mile). Variances from actual cost to standard cost are used to change the standard cost whenever the user desires.

(Demo -> ToolBar - > Reporting -> Cost Center Reports -> Equipment Reports)

Materials Reports provide material units and dollars consumed over various, user selected date ranges, roads/streets and Townships. Inventory reports reflect beginning inventory balances, purchases (units and dollars), usages (units and dollars) and ending balances. Other reports reflect inventory re-orders determined by re-order level(s) and quantity-to-order for each inventory item.

(Demo -> ToolBar - > Reporting -> Cost Center Reports -> Materials (Purchases/Usages))

Personnel reports provide management and control of labor hours worked. They range from general Personnel listings, pay rate(s), Payroll vouchers and reports to Benefit Hours *Lite* (earned and used) reports.

(Demo -> ToolBar - > Reporting -> Cost Center Reports -> Personnel)

A separate Benefits Hours module provides management and control of employee hours worked, earned and used benefit hours (vacation, Medical/Sick, Comp Time, Holiday, Other, and setup utility to configure all parameters to your departmental needs.

(Demo -> Main Menu -> Under Cost Centers -> Benefits)

Our Work Force Planning report provides a breakout of overtime hours worked (also, on what Project), the skills a new-hire should possess, and a recommendation as to hiring.

(Demo -> ToolBar -> Reporting -> Cost Centers -> Personnel -> Work Force Planning)

Scheduling Work as Preventive and/or Reactive involves two modules. Those modules are the Complaints Module (reactive) and the Work Order (Pre-Planned) module. These two modules work in conjunction, as a Citizen Complaint may stay as a Complaint throughout its life cycle (Complaint -> Issued to an employee-> Corrective Actions -> Complaint is closed), or a Complaint may be entered and a Work Order initiated with one mouse click. Either route (life as a complaint OR start life as a Complaint and then converted – with one mouse click - to a Work Order that accumulates corrective actions), provides information on cost, resources consumed, etc.

(Demo -> Menus -> Main Menu -> Complaints (in Management area in center of main menu))
(Demo -> Menus -> Main Menu -> Work Orders -> (in Management area in center of main menu))

A Work Order (Pre-Planned work) may be used to manage and control daily work operations. A work order is initiated by clicking on the Work Order button and adding a new record (or Double-click on an existing record). The record is classified as an Open Work Order (OWO) until it is closed to a project, which then documents the costs (Labor, Material, Equipment, Contracts) used to close that particular work order. The work order, which starts life in the Work Order module, is closed in the Cost Accounting module, by assigning its costs to a Project.

The Work Order module documents all resources used to solve it, provides for tracking via the Project it is assigned to, the original Work Order Number, and a suite of Work Order specific reports on the Browse screen “Browse Work Orders”.

(Demo -> Menus -> Main Menu -> Work Orders -> (in Management area in center of main menu))

The Complaints Module (Reactive work) is primarily used for recording citizen initiated complaints on any asset you maintain. The Complaint module, when first opened, displays only those complaints that have not been solved. Other TABS enable the user to view and edit complaints by Service Type, by Road/Street and by date (hot columns also allow other lookups). Input data is collected either, from your existing forms, or directly from the complainant and the Complaint form can be printed with one mouse click, after saving the input form (on Browse window click the Print key). The print goes through your Choose Printer selector so you have the option to FAX the complaint to any remote locations (our counties out West are very large and some have multiple shop locations). Complaints are closed to an active Project so a complete accounting is accumulated of all resources used to solve the complaint. Budgets may be set up for Complaint Resolution for any period of time, so gauging resource uses against that budget is only one mouse click away.
(Demo -> Menus -> Main Menu -> Complaints (In Management area in center of main menu))

All resources utilized (Labor – hours and dollars, Material – units and dollars, Equipment – hours and dollars, and Contract costs to 3rd party contractors is documented on all work that is performed by your department, both, Complaints resolution and Work Orders.

Controlling Work and Tracking Resources is a direct product of all modules. This analysis converges at multiple points in the system, for instant analysis and reporting at a micro and macro level. One example would be a Project for building a new bridge, for instance. Modules, in the order they can be used, and their information collection and control points, are:

1. Create a new project in the project table
   (Demo -> Menus -> Main Menu -> Projects & Analysis -> create a record (F8, Alt-Insert ,or PLUS))
2. Use Project Estimator to develop cost and management control for the project
   (Demo -> Menus -> Main Menu -> Projects Estimator -> create a record(F8, Alt-insert , or, PLUS))
   - Estimate Labor hrs/cost, Material cost, Equipment hrs/cost and contract costs
   - This estimate is the cost and budget basis for the project

   (Demo -> Main Menu -> Projects & Analysis -> open project you created -> Estimator button)
3. After inserting your project forecast you need to fill out the Funds Sources line, just above the Budgeted line the Estimator filled in. Funds Sources are describe the entities that will provide funding (County, City, State, Federal, Other) for this project. The total dollar amount of Funds Sources should equal the total dollar amount of your project cost forecast, at this point.
4. At this point you're ready to start collecting work and cost data on the project. Other than developing the initial Cost Estimate, the process, to this point in time will take about one minute, or less. To collect cost records use the Cost Accounting (WIN or DOS, depending on the style of data entry the user prefers).

   To enter a cost record click on Cost Accounting (WIN) and create a new record by pressing the PF8 (function key 8), or pointing mouse at browse window while and right-clicking -> Insert, or, clicking the large blue PLUS ICON on the Toolbar.

   The cost record documents what work was performed, by whom and how many hours, what equipment was used and hours it ran, and what material was used and how much. A cost record **automatically accumulates** various cost histories and accrues information automatically in the following modular areas:
   - Project accumulated costs to budget and instant analysis
     Labor, equipment, material and contract costs
   - Fiscal Year analysis (work performed, actual costs to budget, etc.)
   - Work Date analysis and cost control and Work Force Planning
   - Road or Street cost accumulations, maintenance history
   - Bridge new builds, maintenance history, inspections and results
   - Culvert new installs, maintenance history, inspections and results
   - Sign new installs, maintenance history, inspections and results
   - Other Asset new installs, maintenance history, inspections and results

- Work Task accumulations and analysis and Work Force Planning
- Township/District cost accumulations and spatial data analysis
- Road/Street Surface cost analysis, average per mile costs, etc.
- Road/Street Surface Layer costs accumulations for work phase costs
- Employee
  - Regular hours worked
  - Overtime hours worked
  - Benefit hours earned/used (vacation, sick, comp time, holiday)
  - Payroll voucher for documenting work hours and benefits hours
- Equipment
  - Standard costs and operating times for all equipment
  - Actual costs and shop maintenance costs for all equipment
  - Hours/Miles of runtime on all equipment
  - Entry with equipment hours also drives Preventive Maintenance
  - Preventive Maintenance scheduling on all equipment
  - Instant actual cost analysis of maintenance all equipment
- Instant Fiscal Year analysis of costs
  - Material used as allocated to what asset it is applied to
  - Perpetual Inventory (Begin, Purchases, Usages, Ending Balance)
- Area Maintenance (Spatial cost analysis as per Township, District, etc.)
- Instant lookups of all assets located on or adjacent to any Road/Street
  (Demo -> Main Menu -> Roads -> Double-click County Rte 299, for instance)

A Cost Accounting record provides, in many instances, over 20 data updates to various tables associated with that data element - - - all updates are automatic and transparent. An entry describes a work transaction - program logic provides updating, automatically.

Other data is assimilated automatically to provide the user with instant analysis on:

- Total maintenance costs at the Road/Street and/or segment level, by Subdivision, by Surface Type, by Township/District, etc.
  (Demo -> Main Menu -> Roads -> Double-click County Rte 299 ->Cost History TAB)
- Bridge, Culvert, Sign or Other Asset level
  (Demo -> Main Menu -> Roads -> Double-click County Rte 299, appropriate TAB)

Instant Project analysis, including actual spending and labor and equipment hours worked, are compared to the budget amounts, for that project to provided you with a complete view of the projects progress. All data analysis is with live data; i.e., reflects the very last cost record entered against a particular project.
(Demo -> Menus -> Main Menu -> Cost Centers on right side of main menu)

Other automatic tracking logic provides (under main menu > Cost Centers on right side), and open a record in each of the following browse windows:

Equipment - Click Maintenance History TAB for recap of each fiscal year's costs
Inventory - Click Inventory Activity Detail Audit TAB for recap of purchases and issues
Employees – Click Hours Worked & Comp TimeTaken TAB for recap
Benefits – Click Reports -> Hourly and Salaried reports for recaps
Contractors & Vendors – Click History TAB for recap of spending with each vendor
Bridges – Click Maintenance History TAB for user selected FY maintenance history
Culverts - Click Maintenance History TAB for user selected FY maintenance history
Signs - Click Maintenance History TAB for user selected FY maintenance history
Other Assets - Click Maintenance History TAB for maintenance history
Weed Control - Click Costs TAB for Cost History of each Weed Control Project
Shop WO Fleet Management – Each browse record represents a complete shop ticket

Fund Accounting

Budget (General Ledger) – Open a General Ledger and click on the Actuals TAB

Visual R&B IMS©'s built-in, automatic tracking provide instant management tools analysis and asset information as you drill down through the data.

On-Screen Comparison of Planned to Actual Operations is, as described in the previous section, usually only a couple of mouse clicks away, primarily due to the built-in, automatic logic, and the overall software architecture provided by ***Visual*** R&B IMS©.

The other advantage is that two screens, normally, drive the entire system after the initial assets are set up (or we can convert your data) so initial setup is not required.

Reports are available that compare actual labor hours worked and cost, actual material units and cost, actual equipment run time and cost and actual contractor progress payments - - - all with your budgeted amounts for these cost elements. Variance analysis reports are primarily in the Project Reports suite.
(Demo -> ToolBar -> Reporting -> Projects & Project Analysis Reports)

Ad hoc reporting is accomplished by using the Query Wizard or Alt-Query on browse windows – these tools enable you to subset data by whatever criteria you desire, then print a report with that subsetted data. Our ***Visual*** Report Writer may be used to design any type report from any data in the system.

To create a simple report start our ***Visual*** Report Writer:

1. Click File
2. Click Pick
3. Click Select (which opens the highlighted report library)
4. Click NEW button
5. Click Add File
6. Select (whatever table is highlighted)
7. Click NEXT button and select a couple of filelds by clicking the > button
8. Select ORDER BY to put data in order you want it to print
9. Click NEXT button
10. Click Finish – you've written a report on whatever data was selected
11. Test report, click the magnifying glass ICON on right side of ToolBar
12. To print report click Printer ICON, to EXIT report viewer click RED X
13. To close ***Visual*** Report Writer, click File -> EXIT

(Demo -> ToolBar -> Reporting -> Report Writer)

The entire process of writing a simple report can take less than one minute after you become familiar with the Report Writer's interface. Reports in your library, the MyReport Library (for locally written reports) can be accessed from the main menu -> My Report Library. (The report you just wrote may have been in another library, depending on the library that was highlighted in step 3).

There are, currently, over 300 pre-written reports that cover the entire relational data framework, are usually date sensitive and/or other data fields selectable so you can, with a couple of mouse clicks, compare anything to anything.

The reports are organized in the functional area as the Main Menu to enable the user to find the correct report. Also, the Tear Off menu can be implemented simply by holding down the CONTROL key on the keyboard, while selecting any report, from its drop down menu selector.
(Demo -> Hold Down control key -> Reporting -> Select any report)

General costing of maintenance activities is implemented in several ways:

A Work Task analysis report showing hours worked and dollars spending on all work tasks can be run over any period of time to break out the skills needed to fulfill your departments operations.
(Demo -> ToolBar -> Reporting -> Projects & Analysis -> Task Summary and other associated reports)
(Demo -> ToolBar -> Reporting -> Cost Analysis Reports -> Task Performed, etc.)

Project and Project Analysis enables you to develop criteria, by project, by Task worked under that project; i.e., ditching work on a nearly flat road surface is less costly and time consuming than ditching work on the side of a hill, etc.
(Demo -> ToolBar -> Reporting -> Projects & Analysis -> Task Summary and other associated reports)

Spatially analyzing maintenance costs is to provide in our Area Maintenance module which utilizes GIS as the analysis engine. Double-click (edit) and existing township record. After assigning the proper name of the (political district, commissioners district, etc.) and entering the mileage for each type of road surface, the link to our built-in GIS (or your GIS) is selected. The Maintenance Cost TAB provides cost data the last time this screen was updated. To total any costs that have been added since the last update, click the Update button, check the totals for validity, and click the Update Master Maintenance Record button to update all accumulated costs. Next, click the OK button to save record with the updated costs.

On the Browse Maintenance window click the View Maintenance Analysis button for a spatial view of your maintenance costs. Your may print the GIS graphic, copy it to Windows© clipboard and past into a word processing document, or send a copy to another user, etc. The spatial analysis can be implemented in any GIS – the data source is our PolySbDiv file which is a .DBF file that is natively readable (no conversion necessary) by ESRI© ArcView©, and all other GIS platforms.
(Demo -> Menus -> Main Menu -> Area Maintenance (center of main menu))

Other spatially and point related cost data, available for analysis utilizing GIS is accessed at the GIS button on main toolbar. All applications available natively in ***Visual*** R&B IMS© are also available on under your GIS platform.

The data you need to make those applications work under your ArcView© platform is in a .DBF (FoxPro 2.6) file that is natively readable as a direct data source to ArcView© and all other GIS platforms. We use FoxPro only because it is a natively readable (no conversion necessary) data source for GIS applications. You may, if desired create other attributes and/or a Shape (.SHP) file from this data source. The key, is that our data is directly readable and usable under any GIS platform.
(Demo -> ToolBar -> GIS)

Run GIS Main Map for overall county view

GIS with Bridges	Point file with latitude/longitude of asset location
GIS with Culverts	Point file with latitude/longitude of asset location
GIS with Signs	point file with latitude/longitude of asset location
Spatial Data Analysis	Controlled by user data @ GIS -> Spatial Data
Maintenance Analysis	As described above (Spatial related maintenance)
Utilities	Utilities cross county maintained assets
Weed Control	Document weed control spray areas
Visual Editor	Software tool to reconfigure GIS views
GASB34 Assets	Point file with latitude/longitude of asset location
Our City/County	Your County/City dataset (included with demo)
3-D Topos engines	Dataset not available with demo, but you can can get an idea of data with TopoQuads Demo

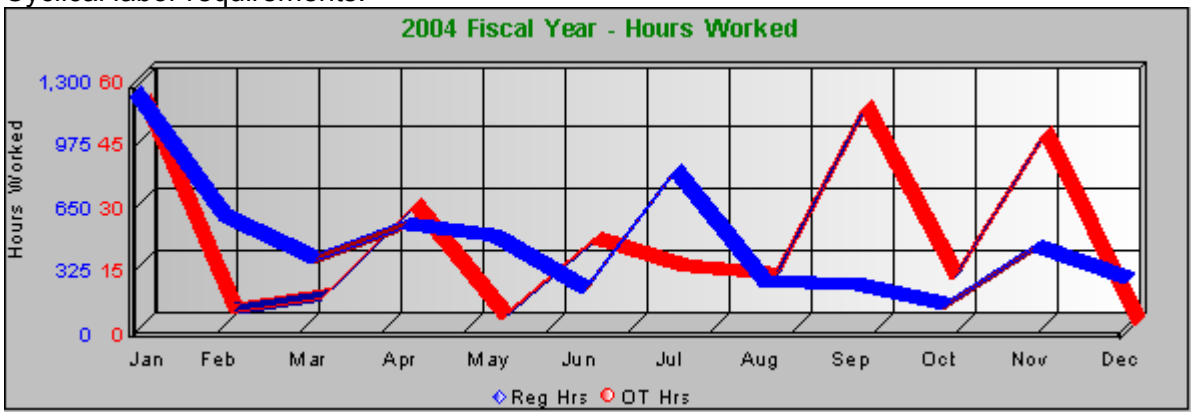
Other general costing reports are available under the Reporting button on Toolbar. These reports are organized in the same manner as the functional areas (Projects, Cost, Fund and Complete Accounting, Cost Centers, Asset Management, Cost Analysis Reports, etc. The

Tear-Off menu (holding down the Control Key while selecting a report) may be used to create your custom working menu.
Monthly, Quarterly, Annual (or any time period) workload distribution balancing is available by running our Work Force Planning (WFP) reports and/or the graphs, located at the WFP button on main menu.

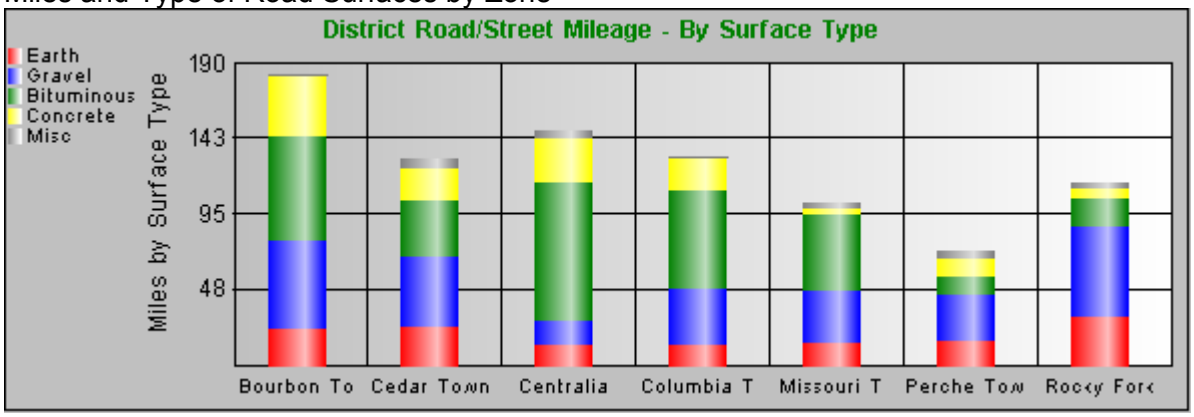
The Work Force Planning (WFP) module provides instant analysis of live data, on; Road/Street Surfaces by Type, and mileage (graph), Hours Worked (Regular and Overtime) for any Fiscal Year (graph), breakdown of Work Task cost (which directly equates to hours worked) for each Zone, Spatial breakdown of work tasks by Zone (GIS spatial data analysis), Projects forecast (using built-in Estimator (labor, material, equipment, and WFP) (report), Analysis of overtime worked and skills utilized for future work force planning (report), Work by task, discrete tasks performed and average cost per task (report).
(Demo -> Menus -> Main Manu -> WFP (Work Force Planning))

Examples of Work Force Planning Graphs for Management decisions:

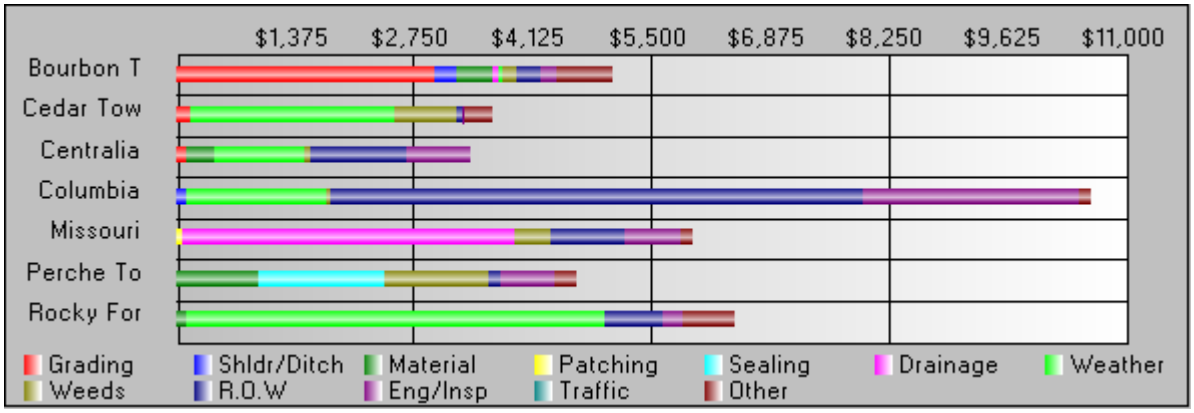
Cyclical labor requirements:



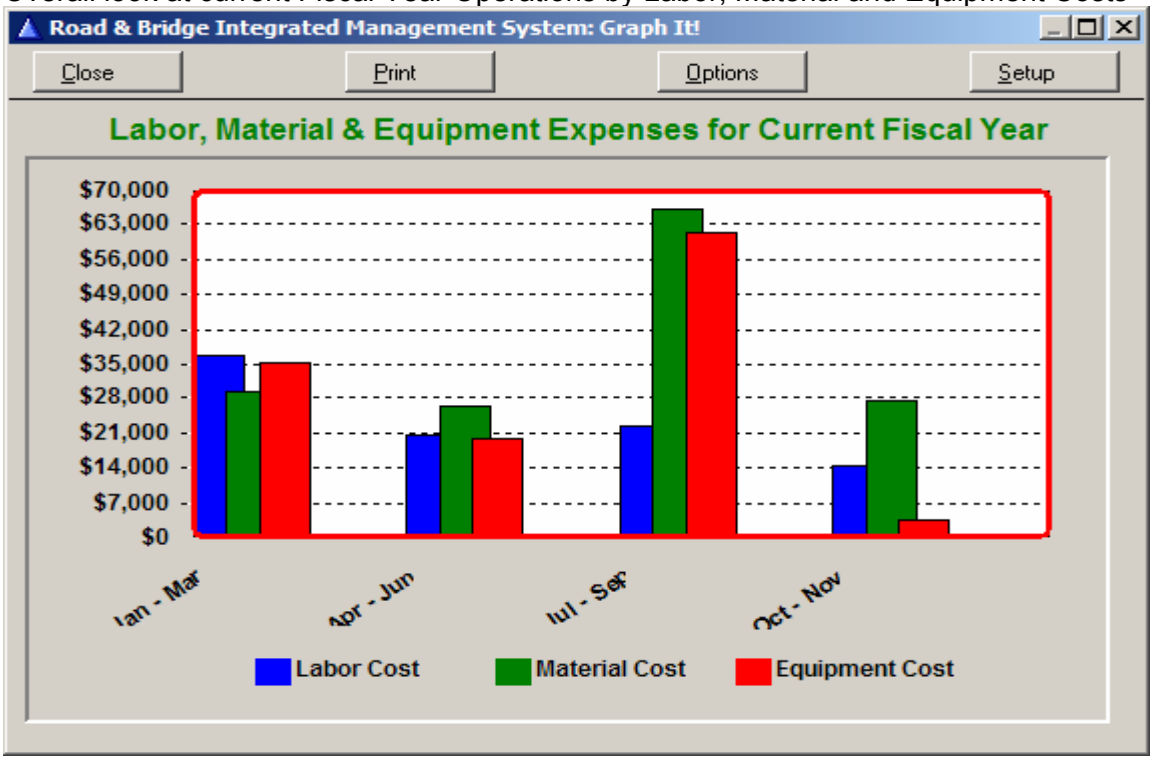
Miles and Type of Road Surfaces by Zone



Work Tasks Performed Cost Analysis, by Zone, with Task Breakouts



Overall look at current Fiscal Year Operations by Labor, Material and Equipment Costs

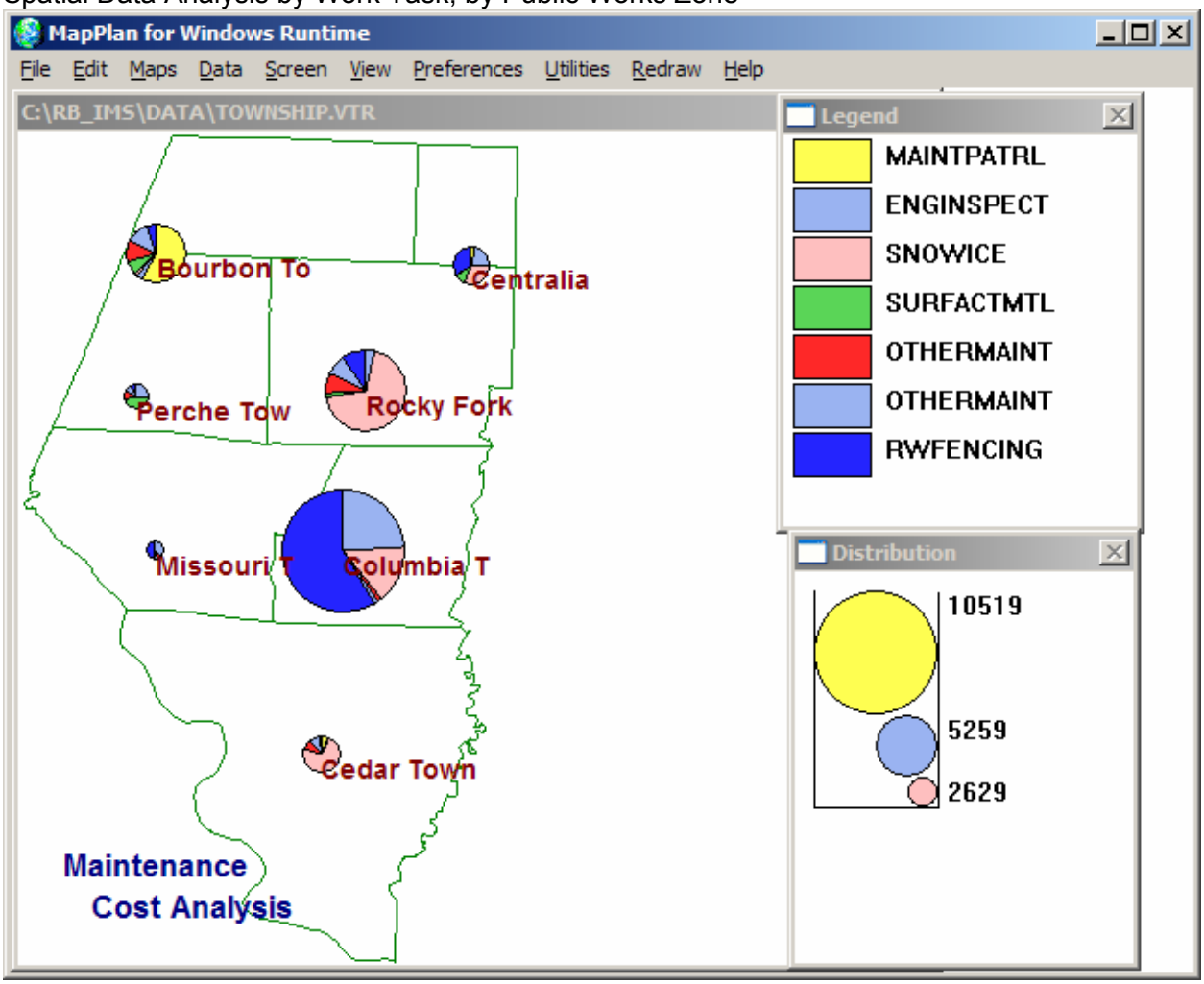


Related Work Force Planning (WFP) reports are available at the main Reporting button on ToolBar. Those related reports cover the primary cost components (Labor, Material, Equipment and Contracts). Those reports are under their respective sections in the drop down menu.

The TearOff menu enables the user to create their own custom menu. This menu provides one-click access to any report, or module, the user uses regularly.

To create your custom menu, for example, hold down the Control key on your keyboard, click Reporting (on main ToolBar, -> Cost Analysis Reports -> Fleet Average MGP/GPH. When you click this last button, that report is added to your custom TearOff menu.
Press/hold Control key (Demo-> ToolBar-> Reporting-> Cost Analysis Reports -> Fleet Average MPG/PGH)

Spatial Data Analysis by Work Task, by Public Works Zone



The above graph utilizes our data files in conjunction with any GIS (ArcView©, GeoMedia©, AutoMap©, ThinkMap©, MapInfo©, etc.). This particular data file is a .DBF (FoxPro© 2.6) data file which is directly usable by your ESRI© GIS platform. There is no need to convert because the .DBF file is natively readable by all GIS platforms. .DBF files may be directly attributed or converted to an .SHP file, if desired. In ArcView©, for instance, create a new data layer (theme) utilize the Maint.DBF file in our DATA folder as the Data Source for the layer. It can be done with five or six mouse clicks. We also other FoxPro© files for direct communication with GIS. Those files are: Bridge, Culvert, Sign, PolSbDiv and RdStGASB.

Planning and tracking work, as covered in the above section, involves the integration of Labor, Material, Equipment and Contracts activities.

Labor activities and their tracking modules provide the Who, What, When, Where, Why and How of your operations. Activity-based (Cost) Accounting provdes this information through the use of the first two screens – Cost Accounting and Fund Accounting:

- Cost Accounting (this module and Fund Accounting module drive the system)
  (Demo -> Menus -> Main Manu -> Cost Accounting)

- Fund Accounting (this module and Cost Accounting module drive the system)
  (Demo -> Menus -> Main Manu -> Fund Accouting Lite)

- Project Accounting – Open record - click on Detail Cost Analysis and Analyze
  (Demo -> Menus -> Main Manu -> Projects & Analysis -> Detail Cost Analysis TAB -> Analyze)

- Equipment (Open record - click Maintenance History TAB for instant analysis)
  (Demo -> Menus -> Main Manu -> Equipment -> Maintenance History TAB)

- Inventory (Open record – Inventory Activity Audit TAB for recap of all activity)
  (Demo -> Menus -> Main Manu -> Inventory > Inventory Activity Audit TAB)

- Employees (Open record – Hours worked/Comp Time taken in current year)
  (Demo -> Menus -> Employees -> Hours Worked – Comp Time Taken TAB)

- Benefits (Open Record – Browse > Audit Payroll Benefits - >Open a record)
  (Demo-> Menus-> Main Manu-> Benefits-> Browse Audit Payroll Benefits-> Open Employee Record)

- Contractors/Vendors (Open Record – Click History TAB for purchase recap)
  (Demo -> Menus -> Main Manu -> Contractors/Vendors -> History TAB)

- Bridges (Open Record – Click Maintenance History TAB)
  (Demo -> Menus -> Main Manu -> Bridges -> Maintenance History TAB)

- Culverts (Open Record – Click Maintenance History TAB)
  (Demo -> Menus -> Main Manu -> Culverts -> Maintenance History TAB)

- Signs (Open Record – Click Maintenance History TAB)
  (Demo -> Menus -> Main Manu -> Signs -> Maintenance History TAB)

- Other Assets (Open Record – Click Maintenance History TAB)
  (Demo -> Menus -> Main Manu -> Other Assets -> Maintenance History TAB)

The above modules track each asset *individually* and provide instant, on screen, analysis, or, reports (under Main ToolBar -> Reporting -> select report grouping) for each asset.

The modules below provide an integrated (assimilated) view of each asset, how it relates to other assets, and their related cost layers. Example: a bridge is an asset, but, cost layers are added as maintenance occurs (capital spending and/or normal maintenance repairs). ***Visual*** R&B IMS© automatically tracks, as, for instance, a cost accounting entry is made, the following activity-based operations:

- Area Management (Current FY analysis of overall operations/costs by Zones)
  (Demo -> Menus -> Main Manu -> Area Maint -> Open a record -> Maintenance Costs)
  (Demo -> Menus -> Main Manu -> Area Maint -> View Maintenance Analysis (spatial analysis)

- Roads (any FY cost analysis of any asset, anywhere in your operational area)
  (Demo -> Menus -> Main Manu -> Roads -> open a road -> click on any TAB for asset analysis)
  (Example: Click Culvert TAB -> open record -> Maintenance History TAB -> double-click record)
  The above example enables the user to locate any asset, anywhere in your county by knowing the Asset Number, what Road/Street it is on, what the GPS coordinates, what subdivision it is in, the alternate name, next Inspection date, surface type,etc. This module connects all assets together under one look.

Other asset tracking, cost analysis, maintenance planning and budget forecasting is provided by the Work Order module, Recurring Work Orders, Pavement Management, Complaints module, Budgeting, Permits, Contract Management and Simplified Road Management (S.R. Mgt) modules – all available from the Main Menu, with one button click.

An Overhead Applicator module enables you, if desired, to spread overhead costs back to Open Projects in the current Fiscal Year.
(Demo -> Menus -> Main Manu -> Overhead Applicator)

Work Request/Work Order System

Visual R&B IMS© provides a fully integrated Work Request/Work Order System that is located in three integrated modules that collect the same work metrics; i.e., labor time and cost, material and cost, equipment time and cost. A functional example follows:

Complaints Module
If work is initiated by a citizen complaint the documentation may start as a logged complaint to documents the who, what, when, how and why.

The Complaint may remain a Complaint through the full cycle (Complaint – Issued to a crew for followup – Returns to Cost Accounting as a document for data entry to document Labor time and cost, Material used and cost and, Equipment time and cost and close the complaint.

The Complaint may become a work order after it is logged in as a citizen complaint. You can convert a complaint into a work order with one mouse click.

Either method creates the same documentation; i.e., how many complaints, how log it took to solve the complaint, how much labor time and cost, material and cost, equipment time and cost and any third party contractor costs.

To step through process in the demo, go to Main Menu and select Complaints button (in center of menu). The Browse window, initially, lists Open Complaints.
(Demo -> Menus -> Main Manu -> Complaints)

Double click an open complaint to see what information is collected at time Complaint is made. You may save the work order, at this point, and print it as a work request, by clicking OK and (on the Browse window, clicking the PRINT button. The Choose Printer selector lets you choose your FAX if you want to FAX the complaint to a remote location, or, you can print the complaint request by clicking the OK button (Complaint prints to screen – click printer ICON to send to your printer), **OR**, you may create a Work Order by clicking the Work Order button on the bottom of the "Changing a Complaint or Service Request" screen.

This dual functionality enables the user to create a Complaint or Service Request and keep it out of the Work Order module, OR, by simply clicking the Create Work Order button, they can create a Work Order. Either way, the same documentation is collected; i.e., labor hours and cost, material and cost, equipment time and cost. Data is automatically collected and assimilated to reporting, as the data is collected.

Simplified Road Management (S.R. Mgt) Module
This module tracts all assets for any maintenance issues that are, generally, initiated by County Employees. An example: One of your dump truck drivers sees a problem developing, such as brush obscuring a STOP sign, on a Local road, as he is delivering a load of gravel on a Collector road. His immediate reaction could be calling on the

radio to note this condition, or, he might report the incident at the end of the day. Either way, click the S.R. Mgt button, OR, when entering a Cost Accounting Record (Cost Accounting (WIN) button on Main Menu) you can enter the information by clicking the Simplified Road Management & Memo (SRM) TAB.

The information to be entered by clicking the Simplified Road Management (SRM) TAB: Classify by Hazardous (1, etc.) and a description of the problem in the memo field.

The S.R. Mgt (Simplified Road Management) button enables the user to look at all assets (your department manages, throughout the county) and, with one mouse click, find any asset that has a complaint lodged, primarily by the people who work for the county (versus, the Complaints Module that is primarily used to lodge citizen complaints). Your mouse click is applied to the TAB that contains the criteria you want instant information on; i.e., (Road) Surface problems, Ditching problems, Signage problems, Visibility (Brush Control) problems, etc.

This module, the Simplified Road Management (S.R. Mgt) is primarily designed to be used within the Public Works Department to track problems on ALL managed assets. The Complaints modules is primarily designed to be used for Citizen Complaints.
(Demo -> Menus -> Main Manu -> S.R. Mgt (Simplified Road Management))

Work Order Module

A Work Order can be initiated in two ways; i.e., from the Complaints Module (with one mouse click), or, in the convention manner, as a standard Work Order.

To create a work order click on the Work Orders button on Main Menu, point at the white area of the Browse Work Orders Window and Right-Click mouse -> Insert. Click the Auto W.O.# button and select Next Sequential button, enter a work date, click Rd/St button and enter an S (from the keyboard) and click Select button, and fill in whatever fields better define the work order.
(Demo -> Menus -> Main Manu -> Work Orders)

The Labor button is for selecting the Crew Leader, Equipment button for assigning the primary piece of equipment to be used (if known at this time), the priority of this work order may be set as well as by functional area; i.e., surface, ditching, signage or visibility problem. A brief description of the work required is a free-form area for describing what needs to be accomplished.

After creating the work order, click OK and you are returned to the Browse Window, which displays only the OPEN work orders. Their project name is OWO-nnn (Open Work Order-number). The work order is referenced this way until it is closed to a regular Project Name – there after, it is referenced by the number (only). Reports are available on the Browse window in an Open Work Order report format, Open Work Order form format, by Misc Field which lets you search both open and closed Work Orders, Selected Open Work Order and Selected In Process or Closed Work Order.

The Work Order, if closed, contains the Labor, Material, Equipment cost and time records that were utilized to fulfill the work order.

After creating the work order the Project Name is in an 'OWO-nnnn' format. The work order is also in the Cost Accounting table under this same naming convention.

To close the Work Order, go to the Cost Accounting (WIN) button on Main Menu and click. When the browse window opens enter OWO from your keyboard (remember, the left-most column on all browse windows are key sensitive (hot)) when first opened. If you want a specific open work order number, then enter it from the keyboard, as; example: OWO-87, and it will be immediately found. To edit press the ENTER key, or

double-click mouse, or point mouse at record and right-click and select change, or click the BLUE pyramid.

> Our system provides several ways to perform most tasks – this means Each person may use "their" way to navigate – everyone has the "best" or preferred way to navigate the screen – this may be confusing, at first, as most software only allows one way to perform tasks, but, after you become familiar with the way you want to work, it makes for a very friendly and efficient user interface.

The Copy button, on the Cost Accounting Browse window, enables you make multiple record entries (with one mouse click), when recording work performed on a work order. The Copy button saves you many keystrokes. After closing the first work record of a work order, and saving it (OK Button) the record is highlighted in the browse window. Click COPY button to copy an exact likeness of the previously saved record and change whatever field(s) need to change to document the entry. Continue using the COPY button, as needed, to close the Work Order.

Use of the COPY button saves many key strokes over other methods of data entry; i.e., you can make fifteen+ entries, after you become familiar with the interface, in under one minute.
To track previously closed work orders in Cost Accounting, with the Cost Accounting Database window open, click on the W.O. # (gray) header bar at the top of the work order number column (sixth column from the left), and enter the Work Order number (number only, because it is now a closed work order). The work order and all line items will immediately be available for editing, etc.

Remember, the gray header bars (on top of each column) are hot throughout the system; i.e., just click on the gray column header and enter the first couple of key strokes of the "item" you are looking for, then press ENTER to edit.

Recurring Work Orders
This module is primarily used to create, document, track and analyze Labor, Material and Equipment time and costs on asset work over extended periods of time, vs. the standard Work Order that is issued for a shorter, discrete, period of time.
(Demo -> Menus -> Main Manu -> Recur WO button (Recurring Work Orders))

Recurring Work Orders may be set up for any asset you manage, by using that assets control number (proper name). The Recurring Work Order may run concurrently with the standard Work Order, or in any manner you specify.

After assigning an asset number (road/street name, bridge number, culvert number, etc.) and an alternate name, if used, the asset is also located by the township, district or zone it is located in. A priority ranking for work on this asset is set, Fiscal Year and date, the filter by ..... is automatically set as RECUR and your priority number. When work is done on this particular recurring work order the cost accounting record is also classified by the RECUR *n* to update this asset control record. The estimated Material, Labor and Equipment units and cost are aggregated totals (containing a grand total for each category) which then enables automatic analyzation of actuals to forecasted work needed – as well as a percentage completed for each Recurring Work Order.

Reports are located on the Recurring Work Order Browse window. They provide Priority, Selected, Zones, Road (asset number) and Priority, Material by Zone and by Equipment reports.

Visual R&B IMS© Work Request and Work Order system provides three integrated modules; the Complaints, Work Orders, Recurring Work Orders modules for initiating, documenting, tracking and

analyzing work requests and work orders. Whichever system, or all three, is used the actual Labor, Material and Equipment used is documented for analysis by:

- Work Force Planning module
- Project Analysis module
- Roads module
- Reporting module

Projects and Analysis Reporting	Analyze labor/material/Equipment costs
Accounting Reports	Analyze operations by General Ledger & Funds
Cost Centers Reports	Select Asset group, then the asset, to analyze
Asset Management Reports	Select asset to analyze
Pavement Management	Select road/street and analyze by survey point
Cost Analysis Reports	Select asset and analyze by operational criteria
Your State Specific Reports	Reports we write included in support contract
Visual R&B IMS©	Custom Reporting by your criteria/specifications

Preventive Maintenance Scheduling

Visual R&B IMS© provides the GASB34 Modified Approach as one method to address these needs. The GASB34 Modified Approach enables forecasting (budgeting) for all assets (globally) and/or individual asset forecasting (budgeting). Click the BackUp button.
(Demo -> Main ToolBar -> GASB34 button -> Modified Approach in GASB34 module)

Click on Setup Global Parameters for Spending Forecasts and select an Asset Grouping. This enables globally setting your percent of historical cost forecasts for that selected asset grouping and the expected inflation factor for the forecast year.

Save the record (press OK) and Close Browse Window. Click Update Spending Forecast to run a "what if" forecast on the assets under the Modified Approach. Click Audit & Maintain Spending Forecasts and a listing of all assets, classified under the Modified Approach, shows current and previous year actual spending (by individual asset and/or all assets) *since the last inspection date*. Double-click on a record to edit and the Spending since last Inspection TAB provide a recap of all work performed on this specific assets, along with the accumulated costs.

The Freeze button enables you to set a specific Forecasted Spending for a specific asset, then freeeze that forecast so it won't be re-calculated; i.e., if a specific culvert is known to need replacement, then that asset can have entered a "real estimated spending forecast" - - and then freeze it so it will not be re-calculated by the global parameters.

Reporting, By Modified Approach, is accessed under the Reporting button on GASB34 ToolBar. Also enabled on the browse windows are query buttons, hot column headers (for finding anything, anyway) and the Send button to export data in various formats (.PDF, .HTML, .XLS, .DOC and/or .CSV formats) to facilitate other users favorite software tools for analysis of data.

> The first time you use the **SEND** button, to create a file, you need to type a file name into the File field. The file name should include the subdirectory structure, if you want to save the file in another folder, otherwise it will save in the folder you are working in. Enter a name for the report, with an extension of .PDF, HTML, .XLS, .DOC, or, .CSV for the format you want to save the file in, then press the TAB key, which enables the START button. Be sure to type the correct file extension after the filename period Extension, i.e., Report.PDF if you selected an Adobe Acrobat (.PDF) file type, for instance.

The Roads Table pulls together, under one interface, all the assets you maintain. All assets are related to some Road or Street location, either directly on that surface, or adjacent to it. An example of this functionality could be, for instance, locating a particular bridge (or other asset) that is on (or adjacent to) a particular road.
(Demo -> Main Menu -> Roads -> Click on the gray column header 'Next Insp')

The browse lists by increasing order each inspection date for the roads you have classified on Memo/Insp TAB on the asset record. To edit that record, press ENTER, or double-click mouse on the highlighted record. This opens the detail record that describes that particular road, including its Last and Next inspection (scheduled) date and overall results of the last inspection.
This inspection and its results are more general than the Pavement Management results, which covert exact 500-foot pavement surveys.

The Pavement Management module (GEN1 TAB) contains inspection results on each surveyed segment, including comparative history on each segment.

To see all bridges on this particular Road click on the Bridges TAB, then click on the (gray) Next Insp column header to subset those bridge (in date order) that have scheduled inspections.

These views, via the Roads module, show only those assets related to the particular road you are looking at. A view, such as this, provides overall information on all assets distributed along a road and the scheduled inspection date(s) related to each individual asset. To view, for instance, all bridges go to the Bridge button on Main Menu and click the (gray) Next Inspection column heading.

All Asset groupings (Bridges, Culverts, Signs, Other Assets and Inventory) have lookup capabilities on their Browse windows, as well as other functionality – all built-in system logic.
Inventory, as a non-fixed asset, is handled differently, and is covered in Section 8.3.4.

Reports, under each asset grouping, are available to print hard copy inspection schedules and other reports with search, subtotal and date range user selectable criteria. Also, any Browse window that has a SEND button
(Demo -> Main ToolBar -> Reporting -> Select Reporting category, asset grouping and report desired)

> The first time you use the SEND button, to create a file, you need to type a file name into the File field. The file name should include the subdirectory structure, if you want to save the file in another folder, otherwise it will save in the folder you are working in. Enter a name for the report, with an extension of .PDF, HTML, .XLS, .DOC, or, .CSV for the format you want to save the file in, then press the TAB key, which enables the START button. Be sure to type the correct file extension after the filename period Extension, i.e., Report.PDF if you selected an Adobe Acrobat (.PDF) file type, for instance.
>
> Also, to add functional buttons to your TearOff menu, just hold down the CONTROL when selecting any report button. This lets each user tailor his/her machine to the way they work.

Our Fleet Management module also has Preventive Maintenance Scheduling.
(Demo -> Menus -> Main Menu -> Equipment -> PM Button (Preventive Maintenance Scheduling))

Work Management and Tracking System

Visual R&B IMS© provides a fully integrated approach to Work Management and Tracking by providing "data rollups and/or drill downs" on any data element used throughout the system. Most "data rollups and/or drill downs" are both instant, on-screen and hard copy report available.

Example of "data rollup and/or drill down" by data elements hierarchy

- Overall Public Works Budget (Budgeting by Fund and General Ledger Account Number)
  - By Work Unit (primary work group control and management)
    - By Project (major jobs you want to categorize, budget, track and manage separately)
      - By Work Order (Complaint Initiation, Service Request and/or daily work documentation)
        - By Work Task (What type of work was performed)

- By Labor (Who, What, When, Where, How)
  - By Material (What type, cost, Inventory relief could trigger reorder)
    - By Equipment (Hours/Miles operated, work accomplished, standard cost)
      - By Contract (Progress payments, and cost layers to project, etc.)
        - By Asset Group (as GASB34 asset groupings)
          - By individual Asset (cost, history, planning, inspections, etc.)

Analysis of the above hierarchy as related to Work Management and Tracking:

Overall Public Works Budget

Our Fund Accounting module is designed for multi-fund tracking, on-screen analysis and a complete reporting suite. Budgeting (Main Menu -> Budget) is based on multiple funds sources (Main Menu -> Sources button) and is the overall management and control tool.
(Demo -> Menus -> Main Menu -> Sources)
(Demo -> Menus -> Main Menu -> Budgeting)
(Demo -> Menus -> Main Menu -> Fund Accounting Uses)

The Sources module (Main Menu -> Sources) is the set up point for the various Funds which enable your department operations.

The Budget module allows for three years live budgeting (prior, current and future year) and has a Budget Amendment module integrated for tracking budget amendments, authorization and reasons for amendment.

The Fund Accounting module (Main Menu -> Fund Accounting Uses button) documents all item purchased (both inventory and non-inventory), payrolls and all spending (normally documented by Purchase Orders, Requisitions or other control documents).

Drill Downs into specific General Ledger Accounts (showing current live data) is available by clicking the Budget button -> Select account number -> Current year, Next & Previous and FY Actuals TABs. These views (by General Ledger line item) provide an overall look at any General Ledger number, its previous years budget and next years forecasted budget. The Fiscal Years Actuals TAB provides recap of all actual spending charged to this GL number, the current encumbrances and current Fiscal Year spending on the line item. Reports are available under various criteria and user entered variables.
(Demo -> Menus -> Main Menu -> Budgeting)
(Demo -> ToolBar -> Reporting -> Accounting Reports -> Budget Reports and Fund Accounting Reports)

Work Unit Budgets

Set up a separate Fund account for each Work Unit that you want to, independently, track spending on. When spending is done by this particular department the Fund is charged and the Fund is charged. This method enables actual dollar spending by any Work Unit in the department.

Create a Project for each Work Unit the Fiscal Year. Each project name would reflect the Work Unit name and Fiscal Year the project is active.

One strategy, for naming Projects for 2005, could be: **EngSvc-05, FM-05, RE-05, RB-05, SM-05** (for Engineering Services, Fleet Management, Real Estate, Road & Bridge and Survey & Mapping). Other new projects, as a Bridge Project, could be named **BridgeOnSmithDrive-05**, or anything you like. Keeping the project name short and meaningful is important, though - - so, a more appropriate name for this project might be: **BrSmithDr-05**

The reason for creating separate project for each work unit and other major projects is this enables you to use the built-in tools to set up budgets (dollars and hours worked) for each project, manage each project separately, have instant on-screen analysis at any time, with live data access to any record charged to any project – usually just one or two mouse clicks.
(Demo -> Menus -> Main Menu -> Projects & Analysis)

An Example of Projects functionality:
Click on the Projects & Analysis button on main menu. The Browse provides instant information on the Budget and Actual Spending plus other relevant information for all projects. Double-click on any project to access the profile description of that project. At the bottom of the first screen is Funds Sources and Budgeted areas in which you can set up individual budgets for each project. Clicking the Detail Cost Analysis TAB provides a view of all actual costs charged to this project. Double-clicking on any record provides a view of the Cost Accounting record which was charged to create this cost layer to the project. Clicking the Analyze Button and the Calc Variances button (bottom center of analysis screen) provides instant feedback on the project and how its spending relates to the budget for that project. Click the GraphIt button and Bar Graph (or other style) to print a graph of the Budget to Actual of this project (Labor, Material, Equipment and Contracts). Complete analysis with just a few mouse clicks.

Close the Graph windows and close screens (The easiest way is to press ESCape key) back to the (maroon) Detail Cost Analysis TABbed window. If anyone wants to further analyze the actual costs charged to this project they can click the SEND button and either send the data to a printer or send data (in another software format) to someone, who, for instance, wants to analyze the data in EXCEL©, or other format.

At minimum, a project can be started with just the Project Name – with other information added later – as it becomes available.

<u>Other Analysis</u>
By Work Order (Demo-> Main Menu-> Work Orders and ToolBar-> Reporting-> Projects & Cost Analysis Reports)
By Work Task (Demo -> Menus -> Main Menu -> Work Force Planning)
By Labor (Demo -> Menus -> Main Menu -> Work Force Planning)
By Material (Demo -> ToolBar -> Reporting -> Cost Center Reports -> Materials (Purchases & Usages)
By Equipment (Demo -> Menus -> Main Menu -> Cost Center Reports -> Equipment Reports)
By Contract (Demo -> Menus -> Main Menu -> Contract Mgt and Reports -> Contractors & Vendors)
By Asset Group (Demo -> ToolBar -> GASB34 -> Modified Approach and Reporting)
By individual Asset (Demo -> Menus -> Cost Centers group and Reporting -> Cost Centers)

Service requests, Complaints, Work Orders and Asset maintenance tracking is transparent to the user as program logic assembles the data as required in on-screen analysis windows and/or reports by user selected criteria.

Work can be tracked to the location performed, the asset maintained, work order number, task code, project work is charged to and to the respective module; i.e., Work Force Planning, Asset Table, etc.

Reimbursable work can be invoice with a couple of mouse clicks. An example: Click on the Invoices button (in Accounting Complete subsection of main menu). Add a record, select a customer from table, select the FUND that will be offset by the receipt, add a detail line item and click on the Our Project # button, select a project and click the Update all costs on this project (before invoicing) button, click the OK button, click the Close Button, and the project will be summarized to a one line item addition to your invoice. Click OK on the Adding a line item to invoice window, click OK on the Adding an Accounting Record window, click OK on the invoice record, and, click the Print Invoices button to print the invoice.

An invoice for any work performed (or you can freeform entry the line item data) can be generated in under a minute. The Project can also be subsetted by using the QUERY tool; example, at the beginning of a Fiscal Year a Mowing project for one of the cities in your county is created and work, througout the year, is accumulated in the project. You want to bill the city each month for the work (labor, equipment and material) in that particular month. The QUERY tool enables you to subset the work done in the previous month for billing.

User definable fields are used in the system. The user creates whatever keywords, project names, asset names, etc. they want to use.

You can budget, track, plan and forecast work planned and performed by work unit by creating a project for each work unit. This enables complete tracking, managing and reporting of the Project.

Material and Parts Inventory Control

Visual R&B IMS© Inventory module is a multi-location, perpetual Inventory control system.

The Multi-location basis allows the user, if desired, to keep the same inventory item (with same inventory number) at more than one location and account for the items as discrete inventory items; i.e., you can keep the same air filter, for example, at two shop location, both using the same inventory number, but different location numbers. This reflects real-world operations.

Perpetual means that, once the line items and beginning inventory are set up the user, normally, does not maintenance the inventory; items are added to you inventory by the Fund Accounting module and decremented from inventory by the Cost Accounting module. Our inventory provides a full history (click on the Inventory button on main menu, open a line item, click on the Inventory Activity Detail Audit TAB. This browse window shows all purchases and usages of this particular inventory line item – which means you can locate a specific culvert that was put into service three years ago, if necessary. Also, by clicking the TAB you have audited this line item – all purchases and all issues.

The inventory calculates the Average Annual Usage (Utilities -> Database Tools -> Inventory Cost Basis), and if you specify an inventory ReOrder Level and ReOrder Quantity a report can be generated to recommend what should be purchased.

Dates of last activity for Purchases and Issues is maintained, as well as the Standard Cost (user entered) and the historical Average Cost (calculated). Reports are available in the Materials Purchases and Usages Section, including worksheets and cycle counts for inventory control.
(Demo -> ToolBar -> Reporting -> Cost Centers -> Materials (Purchases & Usages))

The Inventory is also used as clearing accounts used for Quarry Purchases Reconciliation; i.e., automatic reconciliation of all purchases from all quarries the county deals with. This report can save 20 to 100+ people hours each month.
(Demo -> ToolBar -> Reporting -> Cost Centers -> Quarry Reconciliation (Details & Summary))

Ability to Track Contract Services

The Contract Management module (main menu, bottom center), in concert with Cost, Fund (for progress payments on contracts) and Project Accounting enables you to track all contracts, through all phases (and revision levels) so you know where you are on all contracts, at all times.
(Demo -> Menus -> Main Menu -> Contract Mgt)
Reports: (Demo -> ToolBar -> Reporting -> Cost Centers -> Contractors & Vendors)

Pavement Management System

Visual R&B IMS© Pavement Management System is based on the Minnesota Model, which is a subset of Federal DOT recommendations. We have implemented it so you may use manual data collection (many of our counties are using this methodology, utilizing Civil Engineering students via State DOT

grants and University co-op programs, because of cost – call for further info on), or via automated Laser equipped truck, which can be quite expensive.

The best view is through the Roads Button in center of main menu. The Browse Roads File window shows All PQI (Pavement Quality Index) and Last PQI (the last time a segment was surveyed on a particular road. The gray headers (Avg PQI and Last PQI) are hot, so you can prioritize all your roads with one mouse click.
(Demo -> Menus -> Main Menu -> Roads -> double-click 'County Rte 299' -> Pavement Management button)

Double-click on 'County Rte 299'. At the bottom of the window (left) is the Pavement Mgt button. Clicking it brings up a graph with columns for each segment that has been surveyed and the composite PQI for that segment survey. The graph, as you look back, shows previous (in time) PQI's for all segments that have been surveyed on 'County Rte 299', or any other user selectable road/street that have surveyed segments.

Color Coding: Green represents a PQI over 2.5, Orange is a PQI rating from 1.5 to 2.5, and, Red is a PQI of less than 1.5.

Pavement rating is based on a 0 (a disaster) to 5 (excellent) scale. Rating elements are:

Bituminous Pavement

Transverse Cracking, Cracking, Joint Deterioration, Multiple Cracking, Alligator Cracking, Ravelling/Weathering, Patching and PSR (Present Serviceability Rating)

Concrete Pavement

Transverse Joint Spalling, Faulted Joints, Cracked Panels, Broken Panels, Faulted Panels, Overlaid and Patched Panels, D-Cracking, Longitudinal Joint Spalling and PSR

Continuously Reinforced Concrete Pavement

Patch Deterioration, Localized Distress, D-Cracking, Transverse Cracking and PSR

The technical manual is accessed by clicking the PM Manual button. A complete explanation of each rating criteria, its picture and related data is available in Adobe Reader format and can be printed to hard copy, or searched for key words, etc.

A data collection instrument, for manual data collection, is included in the R&B IMS© manual.
(Demo -> ToolBar -> HELP button to the right of GASB34 button -> R&B IMS Manual)

Data may be entered in the window you are looking at (Demo -> Menus -> Main Menu -> Roads -> double-click 'County Rte 299' -> Pavement Management button), or, for data a lot of date entry records use the Pavement Mgt button on Main Menu (this window runs with less overhead as it does not generat a graph with each entry).
An alternative look at ALL of your roads/streets, that have been surveyed, by the last survey value will provide a quick overview of all road/streets (with one data point accessed; i.e., the last point surveyed).
That view is accessed: (Demo -> Menus -> Main Menu -> Roads -> View All Roads/Streets)

Budgeting/Financial Reporting

We will develop and implement, with "drill-downs and roll-ups", as per your specific needs, a module that will incorporate your inputs and outputs. At present, ***Visual*** R&B IMS© does not contain this functionality in the manner of your request.

The new module will utilize our existing Fund, Cost and Project Accounting data, Work Force Planning, GASB34 and Assets tables, but will provide a comprehensive look the the "actuals" collected from these tables and the "planned" as per your work activity guidelines. Our system currently collect, displays, provides "drill downs and roll-ups" for this data, but your implementation includes the additional (unknown, by the vendor, at this time) "planned' data inputs.

This module, after we receive your specifications and planned work activity data (elements) and combine that with your converted data, should be ready for install at St. Johns County in a one to three months timeline, from system startup. We will also customize the outputs, as needed, to meet you requirements during the first year of operations

Right of Way Permitting

Visual R&B IMS© has a Permitting module for documenting, tracking and providing cost control and management for the Permitting process.
(Demo -> Menus -> Main Menu -> Permits)
Reports are at: (Demo -> ToolBar -> Reporting -> Permitting)

The system does not print your permitting forms until, and if, you provide them to us for incorporation into the system. The Permitting module is designed to follow the permit from inception (who, what, when, where and why), to follow multiple entities (Applicant, Owner, Engineering firm, Contractor), location, Inspection dates and followups and a memo field to keep variable information. You also have cost controls in permitting (just create a Project called "Permits-05" and collect all permitting activity and costs under it, set up a separate budget, and you have instant analysis and reporting of all activities.

Customer Service/Call Center

Visual R&B IMS© Complaints module provides this functionality. Complaints can be directly logged into the system at the point of phone call or entered from your completed complaints and service document, you are presently using.
(Demo -> Menus -> Main Menu -> Complaints)

Our system can work without our Complaints module, with our Complaints module, or in conjunction with your existing PRIDE Customer Service/Call Center. To operate in conjunction with PRIDE we will have to write the linking software module(s), after we know how PRIDE functions and what its inputs and outputs, etc, are. This would be an additional cost module if we have to write the linking module.

Our Complaints module is fully integrated with other tables and modules so, for instance, after taking a complaint or service call a work order can be generated with one mouse click.
(Demo -> Menus -> Main Menu -> Complaints)

The opening Browse window displays only the open complaints and service calls (red X). To view a history of all complaints click the By Service Request Type TAB, the Road/Street TAB, or the Data TAB, for organizing the data by each criteria.

The column header TABs Last Name, Problem/Service Description, Request Type, Road/Street, Reported Date, Resolved Date, Work Order Number (if the complaint or service request was assigned to a Work Order, address, and employee Assigned To are all "hot" Column Headers; i.e., click on one and enter the first couple of characters you're looking for – for instant access to any Complaint or Service Request.

After entering the Complaint or Service Request (select service type to categorize) the crew leader assigned to solve the complaint (Personnel) the Road/Street, the Problem description your can **either** create a work order by clicking the button (save the record after completing the work order), **or**, save the record by pressing OK and, when the Browse window appears, press the Print button to print, or FAX, a copy of the complaint or service request.

The Complaint (or Service Request) is logged (time and date) when it was first entered, logged again (when it is assigned to the Crew Leader to be solved) and logged again, when it is resolved. The action of taking a Complaint or Service Request also builds a resource file for, possibly, doing mass mailings, etc. This functionality is also built-in to this module.

GIS

Visual R&B IMS© is GIS enabled. This is accomplished through use of .DBF (FoxPro 2.6) data files which are natively readable and editable by your ESRI© platforms. On an ESRI© platform create a new theme/data layer and use Bridge.DBF file, for instance, as your Data Source. You may edit this table record from the GIS interface as ESRI© used .DBF files natively – primarily because .DBF used to be the common data source for GIS data.

Another option, if desired, is to create an attribute your GIS that points to the record, in, for instance, the Bridge file, as the data source for your attribute. The key in this file is the BridgeNo field. This attribute would be an SQL 2000 component key and would be maintained by your GIS.

Another option, if desired, is to create a .SHP file which incorporates the Bridge.DBF table as its data source. Your GIS maintains this structure, also.

If you use the, for instance, Bridge file as the data source for any of the three methods changes to the data source are reflected to the GIS automatically, as a changed date on a data source makes the GIS interrogate it for, “what changed”. The data files for briges, for instance, will (probably) always be smaller than 500,000 bytes. For instance, the Bridge data file that ships with the demo has 355 bridges and is less than 400,000 bytes in size, which means instant response.

Implementation and Data Conversion

If we do the data conversion the implementation should take less one day. If you installed the enclosed demo, you can install the base system - - - normally takes a few minutes.

Approximately 80% of the systems we sell never request on-site training. Our telephone support is exceptional, in that, anyone can tell us what they want to do, we walk them through it on the phone, once, or twice, and, because of our intuitve interface, they can do those steps on their own next time.

The system has four levels of built-in HELP on nearly every screen. The first level is Bubble HELP, that is accessed by placing the mouse pointer on a button or field and waiting a second.
(Demo -> Menus -> Main Menu -> Put mouse pointer on the Area Maintenance button)

The second level of built-in HELP is Function Key 1 (PF1) which brings up context sensitive HELP on the screen that has Focus.
(Demo -> Menus -> Main Menu -> Cost Accounting (WIN))

The third level of built-in HELP is the How do I .... screen. This HELP screen shows the steps necessary to perform certain operations in ***Visual*** R&B IMS©.
(Demo -> ToolBar -> Help button (top right) -> How do I ... -> Select any option)

The fourth level of built-in HELP is the software manual(s) which are in Adobe Reader© format so you may use their search engine, and/or print a page, or the whole manual.
(Demo -> ToolBar -> Help button (top right) -> R&B IMS© manual)
(Demo -> ToolBar -> Help button (top right) -> Report Wrier manual)

The basic question is where do you want the data engine and data to reside? The ideal location for our system is on a departmental server located in the Public Works Department. This could keep the network traffic out of your network segments and your main data stores.

Pavement Management Segment Survey Data

Road Street _____ Segment ID _____

	Start	End	Date	*Circle one* Design OR Mile Change *D or M*	Width
Segment Surveyed Information	_____	_____	_____		_____

Bituminous Pavement Rating

Transverse Cracking			Longitudinal Cracking			Joint Deterioration			Multiple Alligator	Alligator	Raveling			
Low	Med	High	Low	Med	High	Low	Med	High	Cracking	Cracking	Rutting	Weathering	Patching	PSR

Concrete Pavement Rating

Transverse Joint Spalling									Longitudinal Joint Spalling			
Slight	Severe	Faulted Joints	Cracked Panels	Broken Panels	Faulted Panels	Overlaid Panels	Patched Panels	D-Cracking	Slight	Severe	PSR

Continuously Reinforced Concrete Pavement Rating

Patch Deterioration	Localized Distress	D-Cracking	Transverse Cracking	PSR

Notes on this Segment

_____

_____

_____

_____

_____

_____

_____

Surveyed by: _____

Time Worked – Work Performed – Equipment Operated - Asset Maintained - Material Used Record

Date	Project	Eqp #	Work Description/Task Done	Township-District or Zone	Hours	Material Used	Material Units	Equipment Meter	
								Begin	End

Hours Worked:

Using Digital Pictures

This example is for saving a picture of a piece of Equipment, but the same procedure may be followed for any asset. The Asset name and the folder you save picture into are the two key ingredients.

The overall process is to save your image (in any format) into the correct folder under the IMAGES folder which is under the applications DATA folder.

Steps for saving the picture in the correct folder with its name the same as the Eqp # - the image may be in any graphic format.

Steps are:
1). Copy the digital picture to the Equipmnt Folder, which is under the Images folder, which is under the Data folder which is under the main Road and Bridge folder

Main Road and Bridge folder
DATA folder
IMAGES folder
Equipmnt folder

2.) Open the Equipment record and note the Eqp # (this what you re-name the image to). Click on the View button and it will initially error out because the image is not in the correct format or has the correct name (click the error OK button).

3.) Click File -> Open and it should be looking into the Equipmnt folder where you copied the image(s) of your equipment. Double-Click to select the first image and it will open in our Viewer.

4.) Click File -> Save As - - - change the file name to the Eqp # and Save As Type to .TIF. Click the SAVE button.

Essentially, you copy all equipment images to the Equipmnt Folder, then open each one and rename to the correct Eqp #.

The update at the end of this month will let you read any image in any graphic format (including those you save in .TIF) so you don't have to go through the process of converting file formats. There is a Batch converter that will convert hundreds of files in a few seconds (if you have many), but you still have to open each image to verify and change the image name to the proper Eqp #.