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0.0 PURPOSE

On May 11, 1999, by Sole Source Certification, the BoCC approved a contract with Perconti Data Systems Inc., for the upgrade to Windows of the Community Development Management System Software (CD-Plus), which DOS version was already in use at the Department of Growth Management. CD-Plus includes several modules, sold separately, and an Automated Inspections Results Phone System. From the year 2000 to present, the Windows CD-Plus has been in use at the Department of Growth Management as a front end to an Oracle database. This evaluation will focus on the quality of the product, its administration, its management, and its impact upon the operations of the department. This evaluation is limited to the Windows version only of the CD-Plus and for the time period from 2000 to present only. It is not the purpose of this evaluation to make recommendations on the future of the CD-Plus or on its management. It is the purpose of this evaluation to serve as a foundation for sound decision making in an era of performance based management and budgeting.

1.0 SUMMARY

As part of its activities for the development of several departmental geospatial software applications and information systems, GIS Staff has worked closely over the years with the CD-Plus software application, with the CD-Plus database, with the Oracle database, with the CD-Plus users, and with its dedicated personnel - the Departmental Programs Analyst. Particularly during the last seven months, with the vacancy of the Departmental Programs Analyst position and with the intensification of the efforts to bring Oracle information on the web, GIS Staff’s involvement with the CD-Plus and its users, has reached unprecedented levels. These experiences, along with user surveys, and with a thorough research of CD-Plus’ documentation and practices, have created the foundation for this evaluation.

Our findings unveil the following:

- To date we have spent ~$700,000 on the Windows version only of the CD-Plus, for use and access by 30-40 users only.

- Out of four modules acquired from Perconti Data Systems, Inc., two have never been used.

- The overhead cost for the maintenance of this software is outstandingly high and it is extremely disproportionate with its functions, operations, purpose, and capacity.

- CD-Plus is a vendor locked product, highly endangering the sustainability of our operations by making them entirely and exclusively dependent on Perconti Data Systems, Inc.

- Our contract and maintenance agreements with Perconti Data Systems, Inc. have put us in a very disadvantaged position, which has caused significant under utilization of our resources and have seriously jeopardized the sustainability of our operations.
CD-Plus suffers by a chronic syndrome of system problems and its functionality is regularly questionable.

CD-Plus uniquely lacks even the most basic of industry standard documentation, which is indispensable for proper management and good use of our resources.

CD-Plus is built with an obsolete technology and a very old and inefficient model of deployment.

CD-Plus does not have a geospatial component, nor does its design allow for its integration.

CD-Plus does not allow for transparent and unlimited access to the information that it gathers.

CD-Plus database lacks proper standardization and good protocols of design, which repercussions impose a costly problem upon us.

The CD-Plus interface is very inefficient, un-intuitive and not well designed.

CD-Plus has never been accepted by its users.

Our management and our administration of CD-Plus over the years, although supported by an extremely high overhead cost, have been deficient and have been cause for under-utilization of our resources.

Perconti Data Systems, Inc. lacks basic standards in vendor support and response.

CD-Plus is far from being a mature product and it should have never been accepted by us until the vendor had brought it up to industry standards and had satisfied our needs.

We conclude that dependence upon CD-Plus for the last seven years has been cause for significant lost opportunities and long term damages to our operations. Below we explain each of these findings in separate chapters, providing references in related appendices.
2.0 TOTAL COST OF OWNERSHIP (TCO)

The term TCO, is known in the software industry to represent Total Cost of Ownership for a software product, service, etc. Compared below are the TCOs for CD-PLUS and the MapAtlas. MapAtlas is a sophisticated software application, which utilizes several frameworks and data standards. It was randomly selected for this comparison among 13-14 other similar software applications, which were developed over the last six years at the Growth Management, and which TCO and distribution model would have been comparable.

This assessment reports on the direct TCO only. Indirect costs, which come from assessment of performance based impacts, have not been included. Below are but a few components of indirect costs which have not been part of this evaluation:

- operational cost related to the architecture of the system, which imposes severe cost upon resources (ex. client based vs. server based deployment, choice of contemporary vs. old technology, etc.)
- quality of product, user convenience and satisfaction, scale of utilization, etc., which collectively impact efficiency of operations and management of resources
- irreversible impact on the structure of the data collected, imposed by the design and functionality of the front end

2.1 TCO for CD-Plus - From 1999 to Present

Software Utilization and License

- Nr Users = licensed users ~60, actual users ~35
- Business Units = GM Building, GM Zoning, PW (2 users), FR (2 users), EPD (6 users), Property Appraiser’s (2 users), Health Department (1 user)
- Transactions per day = hard to measure, but following are results from a user survey we conducted (see Appendix 6.1)
  - 13 users, an hr/day
  - 12 users, less than an hr/day
  - the rest, all day

Upfront Cost

- Software modules Permits/Codes/AIRS, Phase I in 1999 - $94,500
- Software modules DRC and Growth Management, Phase II in 2002 - $54,500 (neither of them ever used)
- Database, Oracle - $11,000, not certain if this is the entire cost
- Dedicated Hardware – hard to find info on this
Maintenance Cost

- Yearly support to Perconti Data Systems Inc.: $12,000 - $17,000 * 7 years = $106,000
- Database yearly support to Oracle Corporation: $1,700 * 7 years = $12,000
- Dedicated personnel, Departmental Program Analyst: $50-60,000 * 7 years = $400,000

Total Cost of Ownership to date: ~$700,000, closed to ~60 users, actual user/day ~35

Other future cost:

- It cannot be improved, changed, or adjusted without additional cost paid to the vendor
- It cannot be improved, changed, built upon, via a competitive process, as it is vendor locked
- If we or the vendor end the contract, we are left with nothing and we must invest from start into a new software, we have no ownership of the product

2.2 TCO for the MapAtlas – February 2003 to Present

Software Utilization and License

- Nr Users = unlimited, no license, actual users 300-400 per month, 24hrs/day
- Transactions per day = 100

Upfront Cost

- Software modules created in house - $0
- Generic GIS Software - existing and a free extension - $0
- Databases, MySql and Php = $0
- GIS Data = $0
- Dedicated Hardware – none, existing servers (network and web) were utilized

Maintenance Cost

- Software yearly support = $0
- Database yearly support = $0
- Dedicated personnel = $0, none, engineered to be integrated into the 3 existing personnel

Total Cost of Ownership to date: $0, opened to anyone/anywhere, actual users/day ~100
Other future cost:

- it can be re-utilized, re-engineered, broken to components, etc.
- it can be improved in a competitive way, with or without cost
- it is ours for ever to do what we want/need, it is not dependent on anyone, we have full ownership of the product
3.0 OPERATIONAL MODEL

We use the term operational model in this report to represent the relationships and the mechanisms that assure the long term sustainability and operation of the CD-Plus and the department’s operations that it supports. It is our conclusion after having worked with it, and after having reviewed all related paper work and technology solutions, that CD-Plus employs a very inefficient and substandard operational model, which has put us in a highly disadvantaged position towards the vendor and which has affected the efficient running of our operations. Below we describe its main components.

3.1 Oracle vs. CD-Plus

CD-Plus is not a generic software application with generic functionalities. CD-Plus is a front end to an Oracle based database that collects data in a pre-determined, pre-structured way. The data collected from CD-Plus, is stored in a dedicated database, called the CD-Plus database. The design of this database, which is composed of several tables, is entirely dependent and fully dictated by the design of the CD-Plus’ front end, although it can be stored in more than one RDBMS environment, such as Oracle in our case. In fact, it was Perconti Data Systems Inc. who created and designed the CD-Plus database along with the CD-Plus front end.

Therefore CD-Plus is composed of two components: the front end and the database. This means that by virtue of the very definition of this product, Perconti Data Systems Inc. should be responsible for the maintenance and upgrade of both the front end and the database. Alas, this is not the case. As reflected in all of our contractual documentation with them, such as the license and the maintenance agreements, a big piece is missing altogether. Full silence is kept on the vendor’s responsibility towards the CD-Plus database, its design, its upgrades, Oracle upgrades, and their mutual relationships. All of the agreements are limited to the CD-Plus front end only.

GIS staff finds this element a huge failure of CD-Plus’ operational model, which repercussions were paid very dearly in our joint effort with Manion Systems Inc. in April of 2007, to migrate servers, migrate Oracle, migrate the CD-Plus database, and restore the CD-Plus front end. Each and every one of the GIS staff for several months worked overtime and out of class to bring that project to fruition, in addition to paying the Manion Systems Inc. (see attached Report from Manion Systems Inc., chapters 4&5).

3.2 Full Vendor Dependency

CD-Plus relies on an obsolete model, where the vendor is in exclusive absolute control. If Perconti Data Systems Inc. goes out of business or decides not to support this product, in a 30 day notice we are left to budget for another product, look for another vendor, go through an RFP process, wait for the product to get ready, go through the process of its acceptance, implementation, etc. This is a process that takes easy one to two years, during which our operations would be interrupted. In addition, and most importantly, we are also left with data structured in such a way as determined
by the needs of the CD-Plus front end, which would not fit the design of a new software, and which re-utilization without extra investment, would not be possible.

By scrutinizing our legal agreements with the vendor, we have not observed a single sentence that protects our rights from the vendor if they decide to raise prices, raise hourly rates, change the terms of the agreements, its model, etc. Please note, that observations and sentences that put caps and limitations to vendors’ rights on these issues, are industry standards in most long term contractual agreements between vendors and users. In our legal agreements with Perconti Data Systems Inc., payment models, deadlines, and rates are explicitly left entirely to the authority of the vendor. So is everything else, related to technology. Not much flexibility is left for the user, other than alternatives of hours of support.

One can easy observe the imbalance in these documents between the few bullets that protect our rights, versus the numerous ones that protect the vendors’ rights. One can also easy observe that the list of deliveries is very poorly defined and much deficient. There are no specifications or definitions in this list, of data, databases, documentation for the software, documentation for the administrator, manuals for users, etc. *(see Appendix 6.2 for a copy of the contract)*.

### 3.3 License and Maintenance Agreements

Currently we have two maintenance agreements to support CD-Plus. One with the Oracle Corporation and one with the Perconti Data Systems Inc., which also covers the Vetrol Data Systems.

- We pay ~$1,500 per year to the Oracle Corporation for *software upgrades, license, and support*. Unlimited it seems.

- We pay ~$1,500 per year to Perconti Data Systems Inc. for Vetrol’s Data Systems Automated Inspection Request System (AIRS), for *maintenance of hardware and software*.

- We pay ~15,000 to Perconti Data Systems Inc. for 12 hrs per month support. This support is limited to *System Problems* only, for the *CD-Plus front end* only.

This agreement is entirely silent about supporting the CD-Plus database, or its framework host the Oracle database. This agreement is also explicit about charging for upgrades and enhancements, without any bother to define them. This agreement is explicit about unused hours. They are not reimbursable.

Based on our experience with industry standard software maintenance and agreements, we judge this agreement to be extremely poor and disadvantageous for us. Standard maintenance agreements are by orders of magnitudes less expensive than this one. They put no cap on support, they guarantee free upgrades and enhancements to their products, and they provide support to system problem reports. The latter, are in general the less significant part of these agreements, as their frequency of occurrence is very rare.
It is highly concerning to us, that a software would have that many system problems to be fixed, that would need 12 hours per month of support each month of the year, year after year. This fact alone implies that the software does not meet the standards of its own designation and it is not ready for release and operation. It also implies that these problems are not being solved. System problems are by definition and common practice a phenomenon that happens very rarely in the life of a software.

Therefore we conclude that ingrained in this agreement is the assumption that CD-Plus is not a mature and up to standards product. This makes a case, among others, that CD-Plus should never had been accepted till the vendor brought it up to standards. In addition, there are no definitions in this agreement of what qualify as system problems, as enhancements, as upgrades and the like. The language is vague and it is subject to vast and broad interpretations without defining any responsibilities. This positions the vendor in a clearly advantageous arrangement to fully dictate terms and conditions to us (see Appendix 6.3 for a copy of the Maintenance Agreement).

For all of the other 13 - 14 customized software applications that we have developed and maintain and for their host databases or generic frameworks, we pay no license fees, no maintenance fees, no services fees. Nor did we acquire them from third parties, as they were developed in house. But we do use licensed generic software from ESRI for which we pay a total of ~$7,000 per year for all what follows:

- ArcIMS, ArcSDE, ArcGIS Server, ArcEditor (all four server based with unlimited licenses)
- 6 desktop ArcGIS ArcView licenses
- several software extensions such as the Spatial Analyst, the Network Analyst, the 3D Analyst, the Geospatial Statistical Analyst, etc.
- two complimentary registrations with a value of $2,200 to the users annual conference
- free upgrades and enhancements for each and everyone of them, 2-3 per year at least
- unlimited email and phone support for each and everyone of them
- system problem reports for each of them, which in our experience have never been more than 1-2 over a period of 6-7 years

For a third party professional perspective on what this agreement is lacking, please see the recommendation from Manion Systems Inc., in p. 70-72 of the attached report.

3.4 System Report Problems and User Gatherings/Conferences

As shown in Appendix 6.4, in the email exchanges of the Departmental Programs Analyst, who was an exclusive dedicated staff to CD-Plus; as shown in numerous other documentation generated by her located under: M:\Resources\Documents\Perconti\PatRees_temp; as learned by
formal interviews and informal conversations with the users of the CD-Plus, it seems that CD-Plus suffers by a plentitude of system problems. Not one or two or three, but many and plenty, which are hard to define, hard to predict, do re-occur, and which have become part of the daily routine of its users and administrators.

Furthermore, not only are these so called system problems numerous and serious, but they have continued to remain such for years. It is hard to understand under these circumstances what then has the vendor’s monthly maintenance support been supporting. Why have these problems not been fixed and they continue to exist and to re-occur? Or are there new ones that arise while others are being fixed? From the Departmental Program Analyst’s email exchanges in Appendix 6.4, the case appears to be both.

Every year, Perconti Data Systems, Inc. organizes a gathering for its users. This is a yearly gathering that requires financial investment from us and to which we have regularly sent staff. One would expect that these meetings would justify the investment by contributing at least to system reports solutions. Alas, the reality is different. Answers from staff that have attended these meetings over the years, coincide in asserting that there is little to no professional benefit to these meetings. No outcomes that would precipitate fixing these system problems.

One gets the same impression by looking at the content of the invitations and of the agendas of these meetings. Most of their content is dedicated to explaining hotel amenities and entertainment activities, leaving almost no room for the actual purpose of the meeting. Even in the little space dedicated to the meeting, there is absolutely nothing specific by topic, by theme, by issue, by presentations, by presenters, their qualifications, or by workshops. Nothing but vague, general language. This reality does not meet the grounds to even start a comparison with standard professional practices in similar professional meetings and events.

GIS Staff is highly disturbed when comparing these agendas and business approaches with the ones from professional meetings they routinely attend and from which they highly benefit. In Appendix 6.5 one can see the 2007 invitation and agenda of the Perconti Data Systems, Inc. In Appendix 6.6 one can see the agenda of the SERUG annual meeting, one of several annual events GIS Staff attends. They both are two day events, they both require equal financial investment from us. One only applies to a single software application. The other to an entire field of knowledge, with many areas of application, in support of 13-14 other software applications we use and maintain, in support of all our other activities for customized services and requests.

3.5 Overhead Cost

In Perconti Data Systems, Inc. website at http://www.cdplus.hq.com/modules (or Appendix 6.7), one reads the following statement: CD-Plus ensures fast access to your data without the overhead of a full-time administrator. It is not true. In order to maintain CD-Plus, in addition to paying a total of $18,000 per year to three vendors, we have also allocated over the years, a full-time administrator, exclusive to CD-Plus. Its annual cost is $50,000 - $60,000. This administrator occupied the position of the Departmental Programs Analyst, but its activities were limited to CD-
Plus only (see Appendix 8 for its daily operations). So the yearly cost of ensuring sustenance of the CD-Plus, is ~$70,000.

This is an extremely high overhead cost for a single software application, which serves 35 users only, and which supports the operations of only two out of the six divisions of the Department of Growth Management. The disproportion of this amount with the services that CD-Plus provides, in fact disqualifies this cost from being considered an overhead. Implementations of technology, in general consist of an upfront investment, which over time pays off by increase of efficiency and operational savings. The opposite seems to be the case with CD-Plus.

Based on our steady departmental statistics, the many other custom made software applications that serve all of the six divisions of the Growth Management Department, other county departments, and the public at large, support with unlimited license, 24 hrs per day, including weekends, an average of 400 – 500 transactions per day. A transaction defined as a minimum of eight page viewing, data downloading, on line analysis, searching, tracking, mapping, data entry, data manipulation, etc.

None of these software applications, or the various software and database environments upon which they rely, have a dedicated personnel. Neither of them requires any monthly support fees. By applying CD-Plus overhead cost standards to them, their collective yearly maintenance cost would have amounted to at least $900,000 per year. Year, after year. Please note that the level of sophistication of most of these software applications, as it relates to their maintenance, administration, and required expertise, is far higher and demanding than that of the CD-Plus.
4.0 Product

CD-Plus is not a mature product and it should have never been accepted by us until the vendor had brought it up to industry standards and had satisfied our needs. In fact CD-Plus is a very dysfunctional software application, which many problems over the years have not been ironed out, but continue to exist at the same frequency. Although CD-Plus was sole sourced, in the year 2000 there were other products in the market that provided the same functions, which had better deployment models and included a GIS Component. One of these companies, NovaLIS, which was working at the time with the Property Appraiser’s Office, gave a presentation to us of a very similar product, in November of 2000.

4.1 Technology and System Design

The CD-Plus software is designed as a desktop application, requiring a one-time installation on each computer that the CD-Plus users use. It appears to be written in C++, but that fact cannot be supported by any available documentation. The nature of C++ prevents the final software from being updated or reverse engineered by the end users. Only the original developers have access to the source code, which is compiled into low-level machine code that runs the end users’ software. In essence, the developers have the only set of keys to the software. In this case, Perconti Data Systems, Inc. holds the keys to the CD-Plus software, and they have never given a copy to Growth Management.

When an update to CD-Plus is available, the updated files are emailed or otherwise transferred from Perconti Data Systems, Inc. to a Growth Management staff member. The staff member then copies the updated files to a specific network share, overwriting the previous version of the files. There is no archive of previous versions of the CD-Plus software. The end users do not have a choice whether or not they want to upgrade the software on their computer. Rather, it is a forced update issued by the Growth Management staff member who copied the new files to the network share. There is no documentation about what changes have been made in each upgrade. There is no mechanism to allow end users to revert back to a previous version of the software.

The CD-Plus front-end sits on top of two other software installations; Borland Database Engine (BDE) and Oracle client. Both are installed and configured as part of the CD-Plus front end installation process. The BDE acts as a middleware between CD-Plus and the Oracle client. There is no mechanism to update the BDE software as the CD-Plus front end and the Oracle client receive updates. Promotions by Perconti Data Systems, Inc. for the future version of CD-Plus suggest that the BDE software is no longer used as part of the CD-Plus setup.

Reports in CD-Plus are designed using Crystal Reports. Reports can be added or updated by Perconti Data Systems or by Growth Management staff. However, basic training or previous experience with Crystal Reports is necessary before creating or editing reports. The report designer would also need a licensed copy of Crystal Reports installed on the computer to edit the reports.
The design of CD-Plus does not allow the software to include or even link to any geospatial technologies, including ESRI GIS, Internet maps, or the newly acquired Pictometry aerial imagery. This creates additional work for users who need to visualize the locations of the data stored in the CD-Plus database.

CD-Plus is designed with an old and inefficient model of deployment, which causes waste in our operational resources. CD-Plus is a desktop application, meaning that a copy of the software needs to be installed in each user’s computer, and then installed again and again in each of them, every time there is a new release, upgrade of operating system, new hardware, etc. This also means hurdles of network and domain issues to overcome, when trying to install it outside of a closed network, as it has been the case with the Property Appraisers, the Health Department, or the other County Departments over the years. Please note that in 2000, server or web based applications, which solve all of these issues, were already in proliferation. Please refer to the GovMax software at www.fiscalgov.com, copyrighted in 2003, for an example.

CD-Plus is also a limited users licensed software, meaning that access to its database and its operations is locked with a key for which utilization one has to pay, and pay significantly from what we have shown in previous chapters.

4.2 Functionality and Performance

It is a common occurrence to discover strange or unintuitive functionality in CD-Plus. Many of the end users have come up with work around solutions to make the software behave the way it makes sense in the work processes. Many of these cases are documented in emails and requests to Perconti Data Systems, Inc.

In the 3.4 section we describe the CD-Plus malfunctions and under-performance. Below, we give a couple of specific examples from a systemic and an administrative perspective as to what lies behind these malfunctions and errors.

The majority of the CD-Plus user interfaces are editable forms. The forms include textboxes, drop down select boxes, checkboxes, date selectors and note fields. Most text fields force all text to be stored in uppercase characters, preventing the user from entering types of information that require upper and lower case characters. Some of the drop down select boxes have values that do not make sense in the context of Growth Management’s application, but there is no where to customize these lists of values. Other select boxes do not enforce the selection of one of the list values. This causes the entry of erroneous and non-standard data.

One common practice of data standardization, which we have applied in the design of our Departmental Document Management system for Zoning and Variances, is to force the user to select from a list of well-known values for Street Type, such as St, Ave, Blvd, Cir, etc. A quick look into the CD-Plus database shows the different values for Street Type that have been entered into the system over time:
4.3 Documentation

One of the most severe problems with Perconti Data Systems, Inc. support and with the CD-Plus in general, is a virtual lack of documentation and a virtual lack of response and responsibility for providing it. There are no configuration files, instructions, installation guides, proper help files and guides for the user, use case scenarios upon which the software’s functions are based, no diagrams or charts of its tables, of how they inter-relate, no data dictionaries, and the list goes on, of what is entirely lacking from basic industry standard documentation requirements for similar products. Please note that the importance of this documentation increases by orders of magnitude when the product manifests constant system problems and failures.

Although we have practiced in this field for many years, we have never encountered a similar situation, not even with the most in-expensive, basic, or shareware software or databases. We consider this situation, unprecedented. This lack of documentation poses unnecessary heavy burdens upon our resources. It forces us to spend valuable time trying to understand the product, to spend time experimenting with different scenarios in a ‘let me try it this way and see what happens’ way, to under-utilize the expertise of our staff, to lower the morale of our staff, which in return cause significant under-utilization of our time, CPU, and human resources.

For more details on this situation please see the attached report from Manion Systems Inc., chapters 4 & 5.

4.4 User’s Perspective

Based on our involvement with CD-Plus over the years and the intense involvement over this past year, we have been increasingly frustrated with the software due to lack of documentation, due to frequent malfunctions, and due to improper administration practices. From the results of a formal users’ survey and from informal conversations with inner and outside departmental users, we have observed that they all share our frustrations. Users complain that working with CD-Plus is a matter of constant aggravation, that system errors are a constant routine of its operations. Using CD-Plus appears to be a task with which users are required to comply, rather than a utility that facilitates their work and increases the efficiency of their operations, which is in the end, the test for all technology implementations.
Many users have also indicated that they have found serious errors in the functionality of CD-Plus, which jeopardize the validity of their actions. They give examples like allowing a permit to be issued when a contractor’s license has expired or when a contractor’s insurance has expired, identical naming protocols for code violation cases and building permits, and others not listed here (please see page 7 & 52 in Appendix 4, or pages 4 & 5 in Appendix 1).

Another important indication that CD-Plus has not been accepted by its users is its under utilization. The two modules which have never been used, would have been embraced by their users, had they been able to efficiently support their operations and to solve their problems. From our interviews with these users, it appears that they have explored CD-Plus before they have made a decision not to make it part of their operations and not to use these two modules. Which leads us to the question as to why was a decision made to invest in these modules before making certain that they would be used by their users? Why was not any attempt ever made over the years to improve and adjust these modules in such a way that they would fit the needs of their users?
5.0 CD-PLUS Administration

Although it has demanded a highly disproportionate amount of dedicated resources, as compared to its services and functions, the administration of the CD-Plus over the years, has been at best, dysfunctional, deficient and has seriously jeopardized the sustainability of our operations. We analyze below the vendor’s and our role.

5.1 Vendor Support and Response

The support communication between the vendor and us seems to be based exclusively on individual emails and attachments, all the while utilizing no protocols. The vendor does not provide a management tracking process, nor appropriately classified log files for our demands for services, for identified problems over the years, for system failure reports, nor for issues solved vs. the ones not solved, etc. Such a tracking system or a classified log file would have had information:

- a) on the type of service we have requested by date and time
- b) whether the service was solved and if yes, at what response time
- c) the time that it took the vendor to work on the service

There is neither a log file to keep track and to demonstrate how are support hours being used each month. What are the specific work assignments that justify these hours? This log file in lieu of a tracking system would have been needed to give us an account on our un-used hours and their roll out to the next month. One would expect that before invoicing us for the following year, Perconti Data Systems, Inc. would send us a yearly report for the current year’s use of support hours. But such a document does not exist.

The vendor does not either provide an ftp site or another similar warehouse where the administrators of the system can find system utilities at their convenience. These utilities include various classes of product documentation, configurations files, installation guides, etc., all by version, by type, by framework system, etc.

For many years now, it has become a common practice for IT companies to provide on line knowledge warehouses. In general they maintain and provide two types of knowledge warehouses: one to be populated by users, and another one by the company. These knowledge warehouses, which may be specialized list serves, or on line places where one downloads files and exchanges problems and solutions, have become an indispensable part of the IT professionals. Although Perconti Data Systems, Inc. has been in business for many years, their website does not provide any similar utility. Not even a simple Questions and Answers support corner exists; neither for its users nor for its administrators. The only support related info that one finds in their site is about payment services and payment alternatives.

During the last 8 - 9 months that GIS Staff has worked more closely with this product, as well as during its previous involvement, getting a response from the vendor has been problematic. Our questions have followed the same pattern, of a first and second emails ignored, then a third, for which we get no answer or which leads us in the wrong direction and causes us to waste time, and
then finally give up on the vendor and start asking around. There have been several cases like this, but below we list only a few: two that were very important and timely crucial and one about less than a basic question.

- Prior and during our major April 2007 migration project, Perconti Data Systems, Inc. did not give us any of the most basic information that we needed from them. We experienced a virtual indifference to our effort and a total lack of responsibility in meeting our needs. There were several misleading emails on various cases and no answers to any of our problems. For a third party professional account of their role in our effort, please see chapter 4 in the attached Manion Systems Inc. report.

- All Florida counties were required to be in compliance by July 1, 2007 with state legislative changes related to building permit applications and notice of commencements. The Building Official, in the beginning of June, had made a request for these changes to be reflected in our permits application. On July 17th, these changes were not yet implemented, as the vendor had not responded. As soon as GIS Staff was made aware of the situation by the Building Official, they immediately within a matter of 30 minutes implemented the changes. It was not before July 23rd that Perconti Data Systems, Inc. sent us the changes, which were no longer needed (see Appendix 10, p. 1).

- In January of 2007, numerous emails were exchanged between the GIS Staff and the vendor, over a period of two weeks, for an inquiry about the availability of a help file for the CD-Plus users, which had never existed in the CD-Plus software. Although much time was spent in back and forth emails, several of them leading in dead end directions, the result was no specific yes/no answer and no help file from the vendor. This wasted a significant amount of valuable time for the GIS Staff. Please see our email exchanges in Appendix 10, p. 2 & 3.

5.2 CD-Plus Administration

5.2.1 Oracle Versions and Upgrades
As we are writing this report, Oracle Corporation has already announced the release of its 11g version of the Oracle Database. Please note that it was in January of 2003, that Oracle 10g was released. We have also recently learned that many months ago, the Oracle Corporation had announced de-support for Oracle 9i starting July 31st, 2007.

Up to April of 2007, CD-Plus was still relying on Oracle 9i and the issues described above had never been mentioned to us, nor seem to have been a concern of the CD-Plus administrators. The GIS Division asked for a migration to Oracle 10g, managed and implemented not only its upgrade and configuration, but also its interface with the CD-Plus, as its GIS packages are all running with contemporary standards, which require use of Oracle 10g.

Our department makes use of a number of software environments and databases, such as ArcView and numerous related extensions, ArcGIS Server, ArcSDE, ArcEditor, ArcIMS, mySQL,
PhP, html, MapServer, Jshape, the web server, several web browsers, etc. They collectively create an ecosystem of integrated platforms that support the many custom software applications, similar to the CD-Plus, that we have developed and currently maintain. Each of these software applications frequently and regularly requires release updates and upgrades. GIS Staff practices are for all of them, without exception, to always be fully upgraded and updated within a matter of a couple of months from their new release. This is crucial for the reliability of software and operations they support.

It is very alarming for the GIS Staff to discover that four years after a new release (10g), at the dawn of the next one (11g), right at the very sunset of the current release (9i), the CD-Plus administrators, had never considered migration to 10g.

5.2.2 Product Propagation
It seems that the propagation of the CD-Plus has also suffered. In 4.4 we have already discussed the users’ resistance to two of the CD-Plus modules and its failure to respond to their needs. In addition, when we conducted the CD-Plus user survey we also discovered that a good percentage of individuals that had been licensed to use CD-Plus, were not actually using it at all. A few others were utilizing only a subset of what their rights were. Please see Appendix 1 and Appendix 11 list 2, for particular names and accounts.

We have also observed that lines of operations were blurry and not clear at several instances, where one user was entering data on behalf of others, or one department for the other, etc. This seems to be more than just a CD-Plus issue, but it is obviously tied to the users’ resistance or to their inability to use the software to increase their daily efficiencies. Examples of these cases can be found in the way the comments from the Health Department and the Public Works were handled, in the way our Departmental Analyst was spending a significant percentage of her time to either enter or edit data into the CD-Plus, in the way the DRC action comments are or are not entered, etc. (see Appendix 6.8).

5.2.3 Product Evaluation
It does not seem that an evaluation has ever been made of the CD-Plus to measure its performance or to strategize on its future improvement. It does not seem that a survey of its users has ever been conducted over the years to see what they might want to see enhanced. It does not seem that its dedicated personnel, the Departmental Programs Analyst has ever been directed to pull together all of the background information that would have created the foundation for such an evaluation.

These seem to be avenues that could have eased the problems of CD-Plus, and would have created a sound platform to start working with the vendor in a structured way, and improve upon the product. For example, at the end of each year, prior to signing a new maintenance agreement with the vendor, it does not seem that an evaluation has ever taken place to assess what was done during the previous year vs. what was requested, vs. what was needed. It does not seem that a yearly plan has ever been in place for the following year. These and other similar practices do exist in other counties that use CD-Plus. From our interview with Marion County’s ITS staff, it seems that at the end of each year, prior to signing the next maintenance agreement with Perconti
Data Systems, Inc., they require them to submit a detailed matrix of the work done during the previous year, broken by task, by time for each task, etc.

5.2.4 Product Management
Although CD-Plus has benefited from a dedicated staff, we have not found its management and administration to be up to good standards. Many of the deficiencies created from the vendor, which we mention in paragraphs 1, 2, and 3 of 5.1, could have been mitigated had we tried to create in house track files, log files, warehouses of documentation, matrices and spreadsheets of our activities, of our experiences, of the vendor’s activities and responses or lack there of, of system failures, etc. None of this exists. We have found nothing but emails and attachments; not even separate email folders classified by topic, vendor, or issue. In order to get a vague glimpse of the activities between us and the various vendors, we had to allocate serious staff resources to catalog email exchanges with the various vendors, in the hope that we would be able to glean anything fruitful for us.

We consider this very disturbing. Other counties we have interviewed, which use CD-Plus and share our frustrations with it and its vendor, have good systems of work orders in place. With these work orders they keep track internally and regularly of their communication with Perconti Data Systems, Inc. by date, by response, by topic, by amount of time and dollars spent, etc. This is especially important when the Maintenance Agreement is so deficient in distinguishing what is an enhancement for which we are required to pay and what is a system failure for which our yearly fee pays.

We have also found that the maintenance and the administration of the list of users, their computers, their accounts, the way they related to assigned groups were very poorly managed and lacked protocols for standards. GIS Staff has spent significant time and resources to clean up and standardize these lists and accounts. In addition, the users’ survey we conducted, both by phone and by email, revealed so many obsolete users that were still active in the CD-Plus system. For an administrator’s list before and after our clean up, please see Appendix 11.

It is obvious by looking at the files and the emails created by the CD-Plus dedicated staff, that she has dutifully been busy, but just not in the proper directions that would have been required and encouraged of her. In fact we observe a major paradox in her role. While on one hand CD-Plus has had the luxury to have had a full time person dedicated entirely to it, on the other hand, this person did not seem to have had enough authority to exercise her full responsibilities, but was mostly left to handle its mundane operations, most of which should in fact have been handled by the CD-Plus users. Please see her JCQ in Appendix 6.8 and her email exchange with the vendors in Appendix 6.4).