

User Guide for Spreadsheet-Based Concurrency Management System

Florida Department of Community Affairs

**Center for Urban Transportation Research
University of South Florida**

USER GUIDE FOR SPREADSHEET-BASED CONCURRENCY MANAGEMENT SYSTEM

September 2007



State of Florida
Department of Community Affairs
2555 Shumard Oak Boulevard
Tallahassee, FL, 32399-2100



Center for Urban Transportation Research
University of South Florida
4202 E. Fowler Ave., CUT100
Tampa, FL 33620-5375
www.cutr.usf.edu



DISCLAIMER

The opinions, findings, and conclusions expressed in this publication are those of the authors and not necessarily those of the Florida Department of Community Affairs.

The authors are not liable for any use of the CMS spreadsheet beyond the intended use expressed in the scope of the project. Also the authors are not responsible for any malfunction caused by user's manipulation of the internal code. Compatibility errors of the CMS due to changes in MS Excel versions are not the responsibility of the authors.

The names used as examples are not intended to represent actual businesses or streets. Any similarity to actual businesses or streets is purely coincidental.



ACKNOWLEDGEMENT

The research team wishes to thank the Florida Department of Community Affairs project manager, Mr. Dan Evans, AICP, for his full support and assistance on this research project.



TABLE OF CONTENTS

1. INTRODUCTION	8
1.1. OBJECTIVES OF THE CMS	8
1.2. CONCURRENCY ANALYSIS PROCESS REQUIREMENTS.....	8
1.3. TECHNICAL REQUIREMENTS.....	9
1.4. USER REQUIREMENTS	9
1.5. SCOPE AND LIMITATIONS	9
1.6. GENERAL WARNINGS	9
2. CMS LAYOUT.....	10
3. CONCURRENCY ANALYSIS.....	12
3.1. ENTER A DEVELOPMENT	12
3.2. ANALYZE A PLANNED DEVELOPMENT	14
3.3. APPROVE A DEVELOPMENT	16
3.4. CHANGE STATUS	17
3.5. EDIT DEVELOPMENT INFORMATION.....	18
3.6. EDIT TRAFFIC DISTRIBUTION	18
3.7. DELETE A DEVELOPMENT	18
3.8. UPDATE COMPLETION DATA	19
3.8.1. Beginning of Year Percentage of Completion.....	19
3.8.2. Current Percentage of Completion	20
3.9. SAVE BACKUP COPIES	20
3.10. START A NEW YEAR	21
3.11. OVERRIDE MODE.....	22
4. CUSTOMIZING THE CMS.....	23
4.1. IMPLEMENTING THE CMS	23
4.2. DEVELOPMENT INFORMATION.....	24
4.3. DEVELOPMENT STATUS	26
4.4. JURISDICTIONS LIST	27
4.5. GENERALIZED LEVEL OF SERVICE	28
5. TABLE AND REPORT DEFINITIONS	29
5.1. DEVELOPMENT INFORMATION TABLE	29
5.2. DEVELOPMENT TRAFFIC TABLE	30
5.3. LINK STATUS REPORT.....	31
5.4. LINK STATUS SUMMARY	35
5.5. CONCURRENCY EVALUATION REPORT FOR REGULAR DEVELOPMENTS.....	35
5.6. CONCURRENCY EVALUATION REPORT FOR DE MINIMIS DEVELOPMENTS	36
5.7. <i>DE MINIMIS</i> TRIPS REPORT	37
6. REFERENCES.....	38
APPENDIX 1.....	39
QUICK TUTORIAL	39



LIST OF FIGURES

Figure 1: Development information input process	10
Figure 2: CMS main spreadsheets and reports	11
Figure 3: Development details data input	12
Figure 4: Calendar control in the development input form.....	13
Figure 5: Space for customization in the Development Input Form spreadsheet	13
Figure 6: Traffic distribution input.....	14
Figure 7: Development input confirmation message	14
Figure 8: Selecting developments to be analyzed	15
Figure 9: Link status report buttons.....	15
Figure 10: Link status report	15
Figure 11: Concurrency evaluation report sample	16
Figure 12: Approving a development	16
Figure 13: Deleting a development.....	19
Figure 14: Percentage of completion fields	20
Figure 15: Save copy function.....	21
Figure 16: Starting a new year in the CMS.....	21
Figure 17: Override mode in the Development Information spreadsheet.....	22
Figure 18: Control value of development status	23
Figure 19: Customizing development spreadsheet	24
Figure 20: Example of customizing the development information spreadsheet	24
Figure 21: New field in the Development Input Form	25
Figure 22: Customizing the Development Input Form	26
Figure 23: Customizing the status name list	27
Figure 24: Jurisdiction List	28



LIST OF TABLES

Table 1: Status-actions matrix.....17



1. Introduction

Transportation concurrency is aimed at ensuring that transportation facilities with adequate capacity are available concurrently with land use and economic development. Florida's law requires local governments to develop and implement a concurrency management system (CMS). The Center for Urban Transportation Research (CUTR) at the University of South Florida has assisted the Florida Department of Community Affairs (FDCA) to develop a general spreadsheet-based transportation concurrency system for local governments. The spreadsheet CMS system was developed by implementing the methodologies described in the transportation concurrency and impact assessment study conducted by CUTR for FDCA in 2007.

The spreadsheet system is customizable, and its main functions include but not limited to concurrency checks for single and multiple developments, link-based generalized traffic impact analysis for developments, traffic impact area determination, *de minimis* trips analysis, and concurrency reports. The transportation CMS spreadsheet system was developed in MS Excel for enhanced data visualization and simplicity. It may be a useful tool for small and mid-size local governments to effectively manage transportation concurrency and economic development.

1.1. Objectives of the CMS

The objectives of the proposed Concurrency Management System (CMS) are to:

- Allow the evaluation of new developments under the adopted traffic concurrency policies.
- Keep track of the completion of ongoing developments and their effect on the roads within their traffic distribution area.
- Store, analyze and maintain information on road link status in an organized fashion.
- Generate reports on road link status, development completion, and traffic impact.

1.2. Concurrency Analysis Process Requirements

The proposed CMS requires moderate changes in the development approval process. The recommended practices are:

- Land developers should submit the traffic studies summarized as generalized pm peak hour two-way volumes per link. The volumes in the traffic distribution of the development should be expressed as a percent of the net new pm traffic of the development.



- The County or City using the CMS should make available the link structure to the developers. In that way, they will be able to collect and provide the information in the required format.
- Updates on the completion of a development are available at least once a year.

1.3. Technical Requirements

Although the CMS was developed in MS Excel, it requires a fast processing speed and memory as the file size increases. The recommended requirements for the CMS to run properly are processor 2.5 GHz, memory 1.0 GB.

1.4. User Requirements

In general, a basic knowledge of Excel will allow the users to operate the system appropriately. Customization, however, may require an intermediate-to-advanced knowledge of Excel including writing macros in the VBA interface.

1.5. Scope and Limitations

The CMS system operation is performed by Excel formulas facilitating the understanding of the operations. Extensive information on the use of formulas can be found in the corresponding help file provided by Excel. The use of macros was limited to data transfer, display and validation.

Since the system was developed using Microsoft Excel Professional Edition 2003 as the spreadsheet provider, it has all the limitations of this tool. Originally, the system can have 5,000 links and 10,000 developments concurrently. These limits can be changed by the user at any time, but under the main constraints of Excel 2003, which are 65,536 rows, 256 columns, and 1 GB of file size. The system has not been proved in Excel 2007 as of the date of this manual.

1.6. General Warnings

The proposed CMS contains formulae primarily related to lookup and reference functions, therefore requiring extensive calculations which may impact negatively the performance of the CMS. For this reason, the automatic calculation feature of Excel was disabled. When the system is in operation, other open Excel spreadsheets may lose the automatic calculation feature. To reestablish this feature, go to Tools/Options/Calculation and restore the calculation to Automatic.



2. CMS Layout

The proposed concurrency management system table layout consists of five spreadsheets:

- Development Input Form
- Development Information
- Development Traffic
- Link Volumes
- ID Numbers
- Generalized LOS

Among these tables, Development Information, Development Traffic, and Link Volumes constitute the core of the CMS. A proposed development is entered in the Development Input form and, after pressing the “OK” button, the development details are stored in the Development Information spreadsheet, and the traffic distribution in the Development Traffic spreadsheet, as depicted in Figure 1.

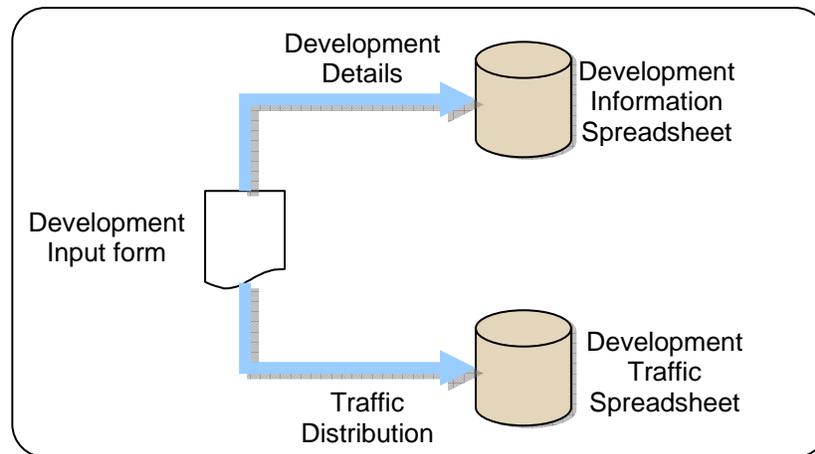


Figure 1: Development information input process

The Link Volumes spreadsheet contains the reports for evaluating a proposed regular development and development with *de minimis* impact. It also contains the Link Status report as well as information on link attributes such as number of lanes, median type, and adopted level of service (LOS). The Link Volumes spreadsheet is calculated based on the status of a development in the Development Information spreadsheet and the traffic distribution in the Development Traffic spreadsheet, as presented in Figure 2.

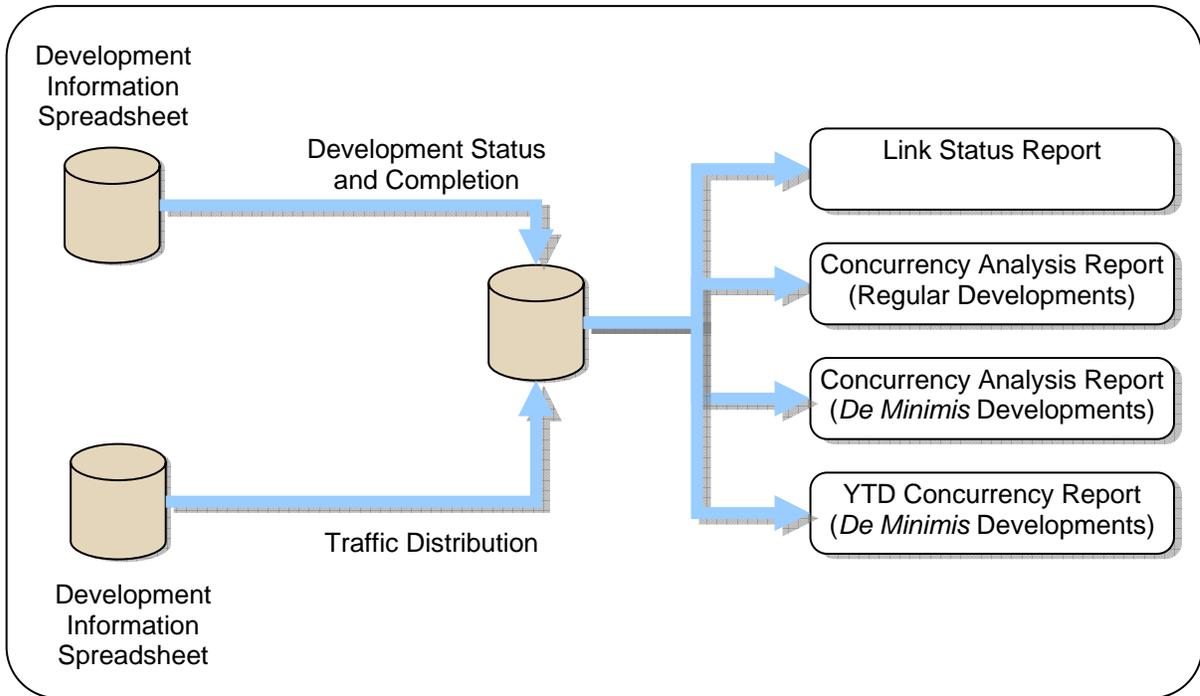


Figure 2: CMS main spreadsheets and reports

The generalized LOS spreadsheet is a side spreadsheet that contains the values for maximum service volume (MSV) for two-way roadways for PM peak hour analysis. The information contained in the generalized LOS spreadsheet was extracted from FDOT, 2007.

The outputs of the CMS are a series of reports:

- Link Summary: This report provides a quick view of the main attributes of the links, such as adopted level of service, maximum service volume, committed traffic, and current remaining capacity.
- Concurrency Evaluation Report for Regular Developments: This report contains the effect of one or more planned development on the links in their traffic distribution area. It also displays the traffic impact area of the development under analysis.
- Concurrency Evaluation for De Minimis Developments: This report contains link attributes regarding the approval of *de minimis* trips on each link (such as hurricane evacuation routes), the current ratio of existing volume to maximum adopted service volume, and other pertinent attributes.
- De Minimis Trips Report: This report contains a report of the *de minimis* trips approved and reserved per link. It also contains link information relevant to the *de minimis* impact development approval.



3. Concurrency Analysis

The concurrency analysis consists on the assessment of the effect that the approval of one or more development may have on the current traffic conditions. The CMS spreadsheet system is capable of performing concurrency analysis for different developments including regular and de minimis developments.

3.1. Enter a Development

A development contains two sets of data. One is related to the details of the developments such as development name, type and jurisdiction. The other is related to traffic distribution. The Development Input Form allows the user of the CMS to enter the development data in a two-phased process. First, the development details are entered, as shown in Figure 3.

Development Name	Type	Net New PM Peak Hour Trips
The Oaks	Regular	200
In Date	Expected Completion Date	Jurisdiction
9/4/2007	9/24/2007	Local

Figure 3: Development details data input

For dates, a calendar control is located at the right side of the form to quickly search for a desired date, if needed. Tips are provided in the form of comments, so the use of a specific feature can be consulted during the operation of the CMS, as shown in Figure 4.



Figure 4: Calendar control in the development input form

A group of rows left out in blank allows customization of the input form. The cells can be displayed by clicking on the “+” sign, as shown in Figure 5.

Link Id	Road Name	From	To
1	CR 214	SR A234	A1A Beach Blvd.
2	CR 214	SR A11	A1A Beach Blvd.
3	CR 214 (W. King St)	SR A	A1A Beach Blvd.
8	CR 5A (Old Moultrie ICR 204		Cowpen Branch Rd.

Figure 5: Space for customization in the Development Input Form spreadsheet

To enter the traffic distribution, the user clicks on the first row of any column of the shaded area, as shown in Figure 6. Link names can be selected from the drop-down menu provided in the Development Input Form, as shown in Figure 6.



Link Id	Road Name	From	To	Development Traffic Distribution (Percent)	Development Traffic Assigment (Vehicle/Hour)
linkId	roadName	from	to	linkTraffic	linkVolume
1	CR 214	SR A234	A1A Beach Blvd.		
2	CR 214	SR A11	A1A Beach Blvd.		
3	CR 214 (W. King St)	SR A	A1A Beach Blvd.		
4	CR 214 (W. King St)	SR 207	Co. Landfill Entrance		
5	CR 214 (W. King St)	Co. Landfill Entrance	CR 214		
6	CR 305	CR 210A (Roscoe Blvd)	CR 210 (Palm Vly Rd)		
7	CR 305	CR 13	SR 206		
8	CR 5A (Old Moultrie Rd)	CR 204	Cowpen Branch Rd.		

Figure 6: Traffic distribution input

The traffic distribution per link is entered as a percentage of the development net PM peak traffic.

After the development information is entered, the “OK” button is pressed to submit the development information. A confirmation message will be received upon completion of the entering the development and saving the workbook, as illustrated in Figure 7.



Figure 7: Development input confirmation message

3.2. Analyze a Planned Development

All developments are entered initially as planned developments in the Development Information spreadsheet. To analyze the effect of one or more developments, the user has to mark them with a “Y”. A tip in the form of an Excel comment is provided in the CMS for a better explanation, as observed in Figure 8.



Tip

Development Status	Concurrency Flag
status	concurrencyFlag
Planned	

To analyze traffic impact:

- Select "Y" from the list on the corresponding development row.
- More than one development can be analyzed at the same time to evaluate their join impact.
- The traffic impact per project per link can be observed in the **Development Information** spreadsheet
- To clear an analysis press the Reset button on top of the concurrency flag column

Figure 8: Selecting developments to be analyzed

In the Link Volumes spreadsheet, "Calculate" is pressed, as shown in Figure 9.

From: 8/24/2007 To: 8/23/2008

Update Lists Filter ON/OFF Marked Links Calculate

Link Status Report

Figure 9: Link status report buttons

After calculating the spreadsheet, the links in the traffic distribution of the selected developments will show a mark (Y), indicating that are being analyzed, as presented in Figure 10.

Link Status Report

Link ID Number	Road Name	Start of Segment	End of Segment	Concurrency Flag
linkId	roadName	from	to	concurrencyFlag
1	CR 214	SR A234	A1A Beach Blvd.	Y
2	CR 214	SR A11	A1A Beach Blvd.	Y
3	CR 214 (W. King St)	SR A	A1A Beach Blvd.	Y
4	CR 214 (W. King St)	SR 207	Co. Landfill Entrance	N
5	CR 214 (W. King St)	Co. Landfill Entrance	CR 214	N
6	CR 305	CR 210A (Roscoe Blvd)	CR 210 (Palm Vly Rd)	N

Figure 10: Link status report

The results of the analysis can be observed in the concurrency evaluation report, as observed in Figure 11. Notice that a Filter can be applied to the link volume table to



display only the link under analysis. Also, with the Filter ON/OFF button, the auto filter can be activated or deactivated on each report. Note that Excel only allows one auto filter per spreadsheet.

Filter ON/OFF Marked Links Calculate

Concurrency Evaluation Report

Regular Developments

Link Id	Road Name	Start of Segment	End of Segment	Existing Peak Hour Traffic	Remaining Capacity	Net Development Traffic	Additional Traffic Growth
linkId	roadName	from	to	trafficPH	remainingCapacity	totalTraffic	additionalGrowth
1	CR 214	SR A234	A1A Beach Blvd.	2,970	315	200	15
2	CR 214	SR A11	A1A Beach Blvd.	2,223	236	160	11
3	CR 214 (W. King	SR A	A1A Beach Blvd.	1,239	(65)	40	6

Figure 11: Concurrency evaluation report sample

The links marked in red corresponds to the traffic impact area. The method for determining the traffic impact area in this spreadsheet system is based on the model approach proposed in *Transportation Concurrency: Best Practices Guide* (Seggerman, Williams and Lin 2007), published by the Florida Department of Community Affairs.

3.3. Approve a Development

To approve a development, the corresponding value from the list on the column of development status is selected, as shown in Figure 12. After the approval of a development, the workbook will save automatically. The default value for approval date is the current date, but that can be changed in the calendar form provided.

Expected Completion Date	Development Status
exCompletionDate	status
9/24/2007	Planned
	Planned
	Pending
	Approved
	Denied
	Expired
	Cancelled
	Completed

Figure 12: Approving a development



3.4. Change Status

A list of seven status names is provided to cover as many cases as possible, as observed in Figure 12. The status names definitions are:

- **Planned:** A developments under study for which traffic distribution information is stored for later approval.
- **Pending:** An intermediate stage for a development before its approval.
- **Approved:** A development that has met all the imposed requirements. Its trips will be subtracted from the remaining capacity of the corresponding links in accordance with its development traffic distribution.
- **Denied:** A development that fail to meet any of the required conditions for approval.
- **Expired:** A development that was previously approved but did not start the building phase within the required deadline. It requires returning the consumed capacity to the corresponding links according to the traffic distribution of the development.
- **Cancelled:** A previously-approved development that is no longer under construction or whose construction was suspended indefinitely. This status also requires returning the consumed capacity to the corresponding link according to the traffic distribution of the development.
- **Completed:** A development that has completed its construction phase and is ready to be occupied or is already occupied.

Not all the transitions between statuses are allowed. For instance, going from Planned to Cancelled is not possible. Only an Approved development can be cancelled. Some changes require special actions, while others do not require a specific action to be taken. A matrix of status-actions is presented in Table 1.

Table 1: Status-actions matrix

	Planned	Pending	Approved	Denied	Cancelled	Completed	Expired
Planned	0	0	1	0	-1	-1	-1
Pending	0	0	1	0	-1	-1	-1
Approved	-1	-1	0	-1	2	0	2
Denied	0	-1	-1	0	-1	-1	-1
Cancelled	0	-1	-1	-1	0	-1	-1
Completed	-1	-1	0	-1	-1	0	-1
Expired	0	-1	-1	-1	-1	-1	0

- 1: Not Possible
- 0: Take no action
- 1: Add trips to reserved traffic
- 2: Remove trips from reserved traffic



3.5. Edit Development Information

Changes to a development may include correcting the net new traffic or the jurisdiction, among others. This can be done directly in the Development Information spreadsheet, and its changes will be reflected in all spreadsheets.

3.6. Edit Traffic Distribution

Changes to the traffic distribution, such as changing a traffic percentage, can be done directly in the Development Traffic spreadsheet. The project distribution can be easily located by using a filter. Entering a new link must be done by manually dragging and then verifying and correcting the corresponding formulas.

3.7. Delete a Development

It is possible to delete an existing development, depending on the development status. For instance, Approved developments cannot be deleted. The development statuses that accept deletion are Denied, Cancelled, Planned, and Completed. To delete a development, first it is necessary to display the Deletion Flag column and mark the development row using the drop-down list, as shown in Figure 13. More than one development can be deleted at the same time. Prior to deletion, a confirmation question will be asked; if the user decides to continue the deletion, the operation cannot be undone. The workbook is saved after deleting a development.

Deleting a development in the suggested way will ensure that all instances of a development are deleted and no blank rows are left in the middle of the data, which may cause malfunction of the spreadsheet.

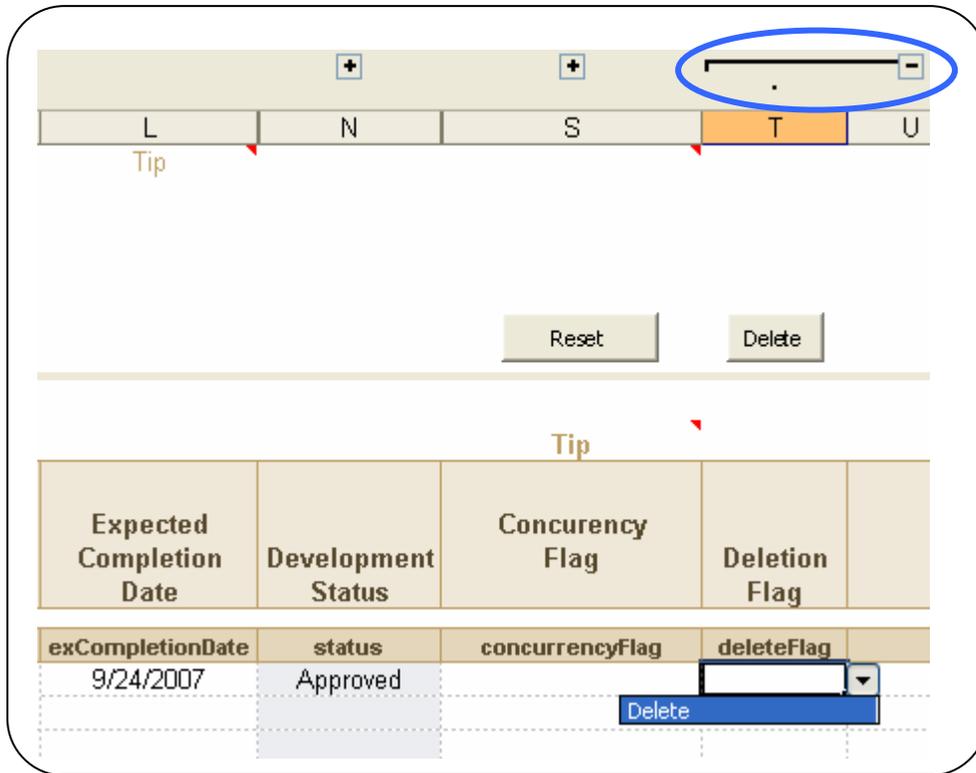


Figure 13: Deleting a development

3.8. Update Completion Data

Completion data corresponds to the follow-up of the construction process once a development is approved. Completion information is entered in the system in the form of a variable named Percentage of Completion (POC). There are two types of percentage of completion:

- Beginning of Year Percentage of Completion
- Current Percentage of Completion

These quantities are entered by the user manually, and their columns can be displayed by clicking on the “+” sign on the Development Information spreadsheet, as observed in Figure 14.

3.8.1. Beginning of Year Percentage of Completion

Since traffic counts are updated in a yearly basis, it is necessary to know the percentage of completion of all the approved developments (ongoing construction projects) prior to the last day of the count. This will give an idea of the trips captured by the traffic counts and the portion of the approved trips that need to be reserved. These data are considered the best available estimate of the completion of a development and are to be entered manually by the user according to the



information received about ongoing construction projects. This column should be updated once a year. A new development is entered with 0 percent.

3.8.2. Current Percentage of Completion

This shows an update on the percentage of completion based on the associated date of reporting. These updated data can be retrieved at any time, and only the last update is saved. This is useful for recording the latest completion information on a development. It is called instant because it can be updated several times during the year and it assumes that the last value recorded is the current value of percentage of completion.

Current Percentage of Completion (PC)	Date of PC	Percentage of completion at Beginning of Year	Concurrency Flag
50	9/5/2007	10	

Figure 14: Percentage of completion fields

3.9. Save Backup Copies

Backups are not performed automatically by the CMS. The user can create backup copies at any time by pressing the “Save Copy” button provided in the Development Information spreadsheet, as shown in Figure 15. The suggested name for the copy is *CMS_month-day-year.xls* but the user can change the name at any time.

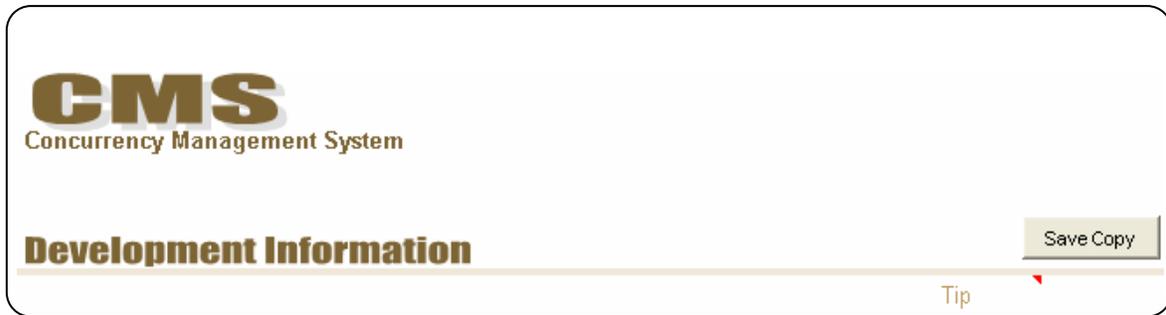


Figure 15: Save copy function

3.10. Start a New Year

The recommended practices for starting a new year in the CMS are:

Development Information spreadsheet:

- Save a backup copy of the previous year.
- Delete Completed, Denied, Cancelled and Planned developments that are no longer in use.
- Update the beginning of the year percentage of completion. Make sure this is consistent with the last date of traffic counts.

Link Volumes spreadsheet:

- Update the “From” filed date, as shown in Figure 16.
- Delete all previous year traffic counts.
- Enter the new year traffic counts.
- Enter any new information on link attributes (number of lanes, adopted LOS).
- Calculate the spreadsheet.

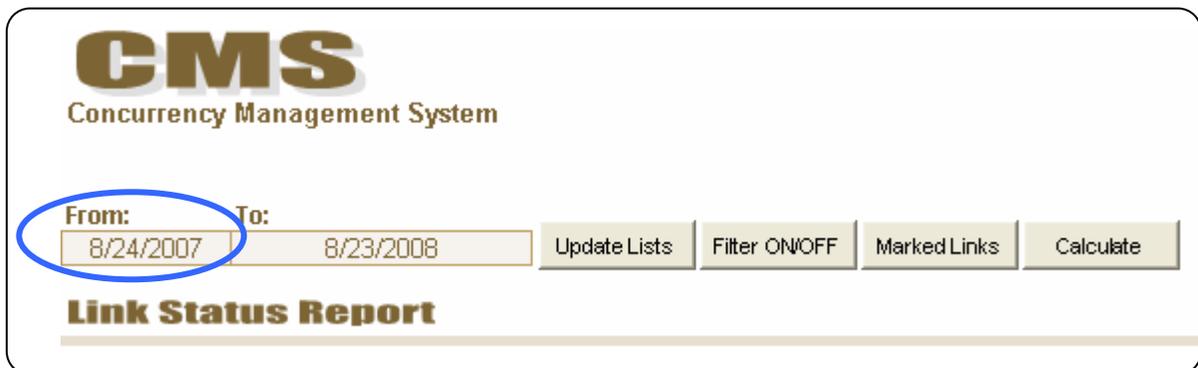


Figure 16: Starting a new year in the CMS



3.11. Override Mode

The override mode can be used in the Development Information spreadsheet for two reasons: (1) to correct a development status or flag or (2) when customizing the spreadsheet. The cell holding the value of the override mode is usually hidden. The default in the CMS is OFF. To activate the override mode, the user displays the corresponding cell and sets the value to ON from the drop-down list, as presented in Figure 17. The override mode will bypass all validation of status change, concurrency flags, and deletion flags. These validations protect the consistency and integrity of the data, as describe in previous sections--for example, deleting approved developments or including approved developments in the concurrency analysis.

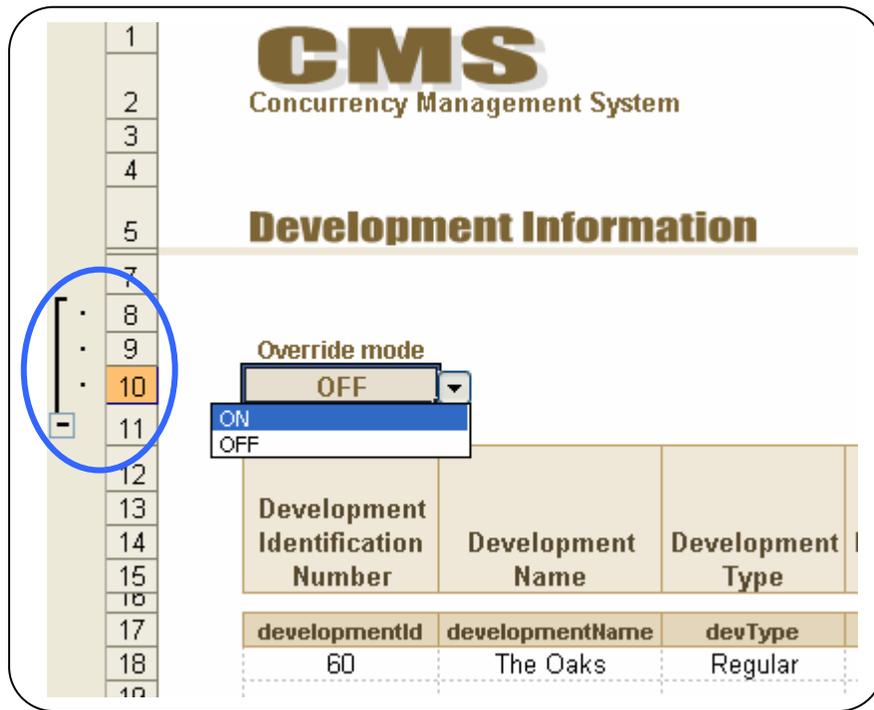


Figure 17: Override mode in the Development Information spreadsheet

Before going back to normal operation, be sure that all the flags are cleared and that the control value of status (status2) is equal to the displayed development status. Status2 is a side field that stores the previous status of a development. It is used in the cases when a change of status is not successful and the development has to return to its previous status. The user needs to display the column of status2, as indicated in Figure 18.



Development Status	Development Status2	Current Percentage of Completion (PC)
Approved	Approved	50

Figure 18: Control value of development status

4. Customizing the CMS

The CMS can help with the organization of development traffic data and with primary calculations on effects that new developments may have on existing traffic conditions. Since the CMS was implemented in MS Excel using formulas, different types of calculations can be incorporated, new spreadsheets can be added, etc.--the possibilities for customization are bounded only by the limitations of Excel. Following are the primary customization alternatives that might be useful at the implementation stage.

4.1. Implementing the CMS

The CMS can serve as a guide to modify existing spreadsheet systems or to be used on a regular based for concurrency tracking. Implementing the CMS to be used regularly requires information on the links in which the user is interested in tracking concurrency. The required link information includes data such as traffic counts, K-factor, and number of lanes. The link information is to be entered in the Link Volumes spreadsheet, specifically in the Link Status Report. The required files for implementing the CMS are marked with the word "Required" in parentheses in the table definitions section. Optional and calculated fields are also indicated in the Link Status Report definition.



4.2. Development Information

Additional fields can be added to the Development Information spreadsheet and can be collected via the Development Input Form. To do this, the user must create the new field with the appropriate format at the end of the existing fields where there are empty cells, as shown in Figure 19.

Tip				
Concurrency Flag	Deletion Flag			
concurrencyFlag	deleteFlag			

Figure 19: Customizing development spreadsheet

The wider header is for the descriptive name for display purposes only. The small header is the actual working name and should be explicit and cannot contain special characters. For instance, adding a field for “ITE Code” will be as shown in Figure 20.

Tip				
Concurrency Flag	Deletion Flag	ITE Code		
concurrencyFlag	deleteFlag	iteCode		

Figure 20: Example of customizing the development information spreadsheet

The new added field can be incorporated in the Development Input Form as a single cell named range. Assuming that the new field is to be collected in cell D14 of the Development Input Form as shown in Figure 21.



The screenshot shows a spreadsheet interface for the CMS. The grid has columns C, D, and E, and rows 1 through 14. The title 'CMS Concurrency Management System' is centered in the top rows. Below the title, there are two input fields: 'Development Name' with the value 'The Oaks' and 'In Date' with the value '9/5/2007'. A new, empty input field is located in cell D14, which is circled in blue. The row numbers 1 through 14 are listed on the left side of the grid.

Figure 21: New field in the Development Input Form

With the desired location selected, go to Insert/Names/Define and provide the named range with exactly the same name as the working header (small) in the Development Information Form, as indicated in Figure 22. Notice in the figure that the name “iteCode” is given to range D14 of the Development Input form; this name is consistent with the name of the working header on the Development Information spreadsheet.

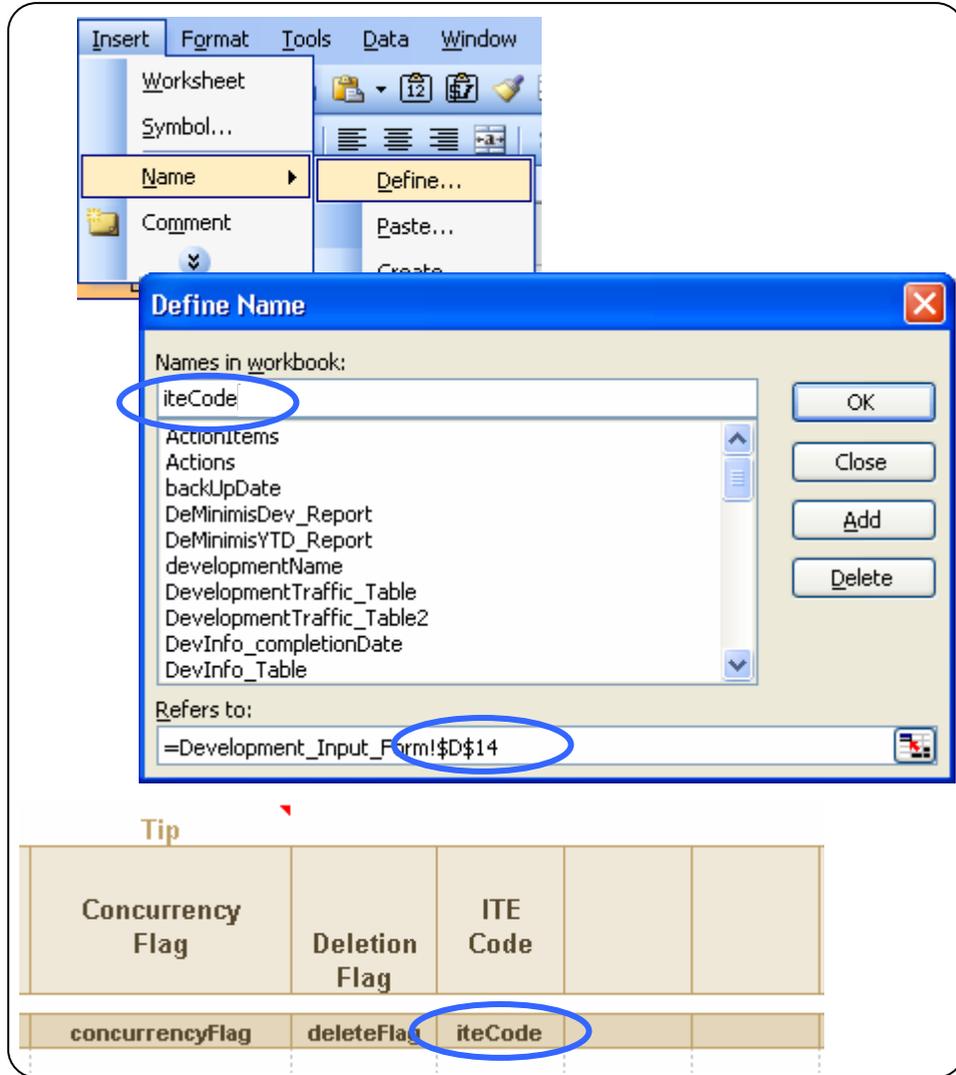


Figure 22: Customizing the Development Input Form

4.3. Development Status

If all development status names will not be used, the list can be shortened by reducing the size of the validation list. The user can change the validation by going to Data/Validation and reducing the list to the desired names, as shown in Figure 23.

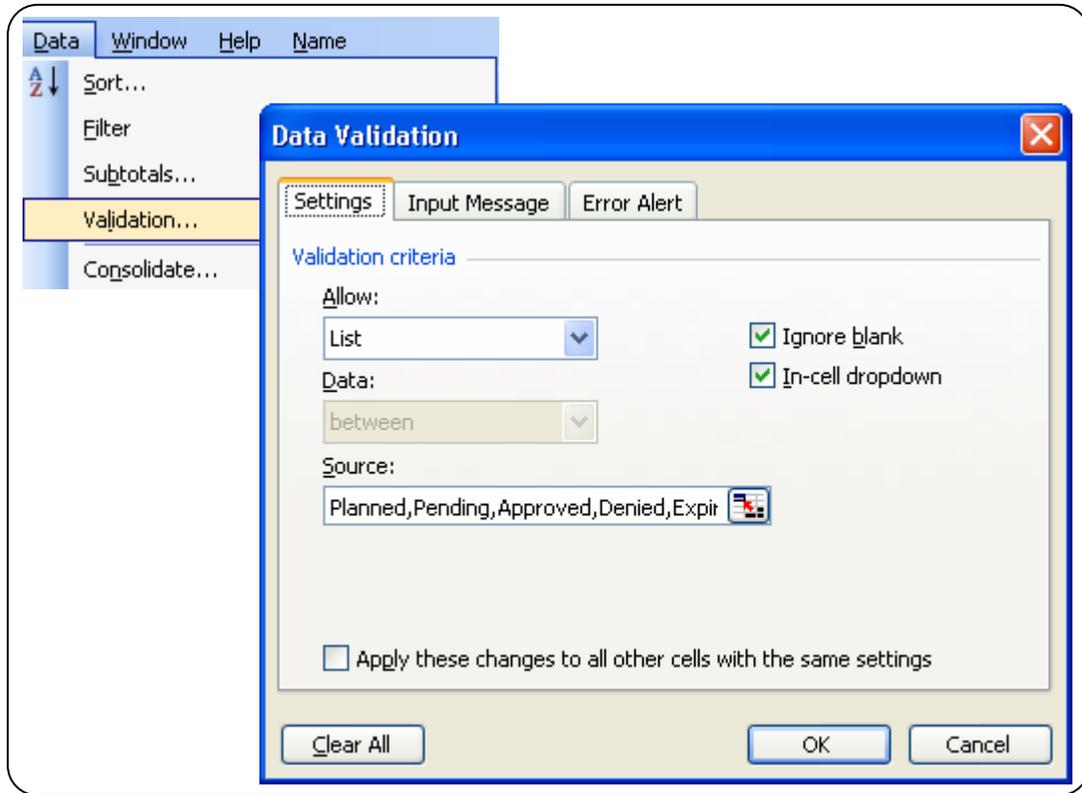


Figure 23: Customizing the status name list

4.4. Jurisdictions List

The Jurisdictions list can be added or contracted at the user's discretion. The default number of jurisdiction is 11. To change the names without altering the list in the Development Input form, the user displays the Jurisdiction list and inputs the desired names, as shown in Figure 24. Another way to modify the jurisdiction list is to go to Data/Validation and input the Jurisdictions list for the corresponding cell.

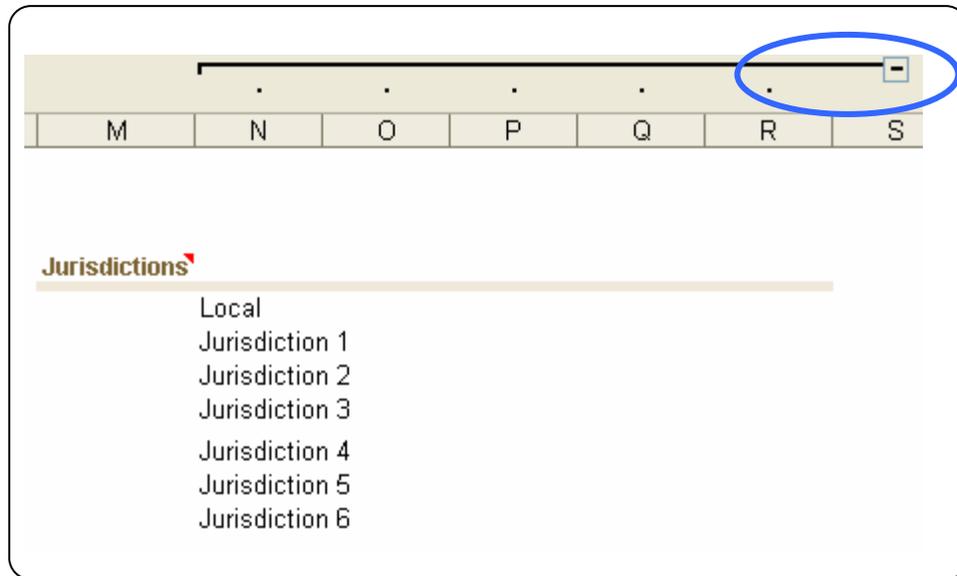


Figure 24: Jurisdiction List

4.5. Generalized Level of Service

The Maximum Service Volume (MSV) is based on the Generalized Level of Service Tables from FDOT (FDOT 2007). The MSV is retrieved from the Generalized LOS table by means of a multicriteria lookup formula. The formula is based on area type, arterial class, median type, number of lanes, and level of service letter. If a customized level of service table is available then the attributes in the tables can be set to the desired values and the formulas and validation lists in the link volumes spreadsheet modified accordingly.

Six different criteria are used to retrieve the maximum service volume. The values for each criterion are listed below. Not all the combinations are possible. For each feasible combination a Maximum Service Volume is retrieved from the Generalized Level of Service Tables.

Area Type: Urbanized, Transitioning, and Rural

State Road: State, Non-state, N-A

Road Classification: I, II, III, IV, Uninterrupted, Interrupted, Major, and Other

Median Type: Divided and Undivided

Number of Lanes: 2, 4, 6, and 8

Adopted LOS: A, B, C, D, and E

To customize the Generalized levels of service replace the given values for each field for the new ones. In the Link Volumes Spreadsheet modify the validation list for each of the fields listed above (Data/Validation). Further customization will require writing a new lookup formula.



5. Table and Report Definitions

5.1. Development Information Table

- Development Identification Number: Consecutive number generated by the CMS to uniquely identify a development.
- Development Name: Name assigned to the development for identification purposes.
- Development Type: Based on the trips generated by the development--*De Minimis* or Regular.
- Development Jurisdiction: Either local or from the jurisdiction defined by the user of the CMS.
- Development Net New Traffic: Net new trips generated by the development during the PM peak hour based on the latest edition of the ITE Trip Generation.
- Input Date: Date that the development was entered to the CMS (default is the current date).
- Approval Date: Date on which the development was approved (default is the current date).
- Expiration Date: Expiration date of the approval; default is one year, but the formula can be easily modified to cover more than one year.
- Elapsed Time: Time since the approval date, expressed in years.
- Expected Completion Date: Date from which all the development net traffic can be considered to be effective or on the road.
- Certificate of Occupancy: Date when a development is completed and therefore can be assumed that the trips it generates are effective.
- Development Status: Current status of a development--Planned, Pending, Approved, Denied, Expired, Cancelled, and Completed (see Change Status for details).
- Development Status2: Control value for development status (see Override Mode for details).
- Current Percentage of Completion: Latest percentage of completion available.



- Date of PC: Date of the latest percentage of completion.
- Percentage of Completion at Beginning of year: Percentage of completion of a development at the beginning of the new planning year (see Update Completion Data for details).
- Concurrency Flag: Mark used to indicate if a specific development will be included in the concurrency analysis.
- Deletion Flag: Mark used to indicate that a specific development is to be deleted.

5.2. Development Traffic Table

- Development Identification Number: Consecutive number generated by the CMS to uniquely identify a development.
- Development Name: Name assigned to the development for identification purposes.
- Development Type: Based on the trips generated by the development--*De Minimis* or Regular.
- Development Jurisdiction: Jurisdiction assigned to the development--either local or from the jurisdiction defined by the user of the CMS.
- Development New Net Traffic: Net new trips generated by the development during the PM peak hour based on the latest edition of the ITE Trip Generation Handbook.
- Current Percentage of Completion: Latest percentage of completion available.
- Percentage of Completion at Beginning of Year: Percentage of completion of a development at the beginning of the new planning year (see Update Completion Data for details).
- Development Status: Current status of a development--Planned, Pending, Approved, Denied, Expired, Cancelled, and Completed (see Change Status for details).
- Approval Date: Date on which the development is approved (default is the current date).
- Link ID: Unique identification number for the link assigned by the local government.



- Road Name: Name of the road where the link is located.
- From: Link starting point (an intersection or a milepost).
- To: Link ending point (an intersection or a milepost).
- Development Traffic per Link (percent): Traffic distribution of the development, expressed as a percentage of the development net traffic during the PM peak hour.
- Development Trips per Link: Actual number of trips of the development generated on a particular link, the result of multiplying the development traffic per link times the development net traffic.
- Concurrency Flag: Mark used to indicate if a specific development will be included in the concurrency analysis.
- Total Traffic per Link for Selected Developments: Sum of all trips of all selected developments summarized per link; the new aggregated traffic generated on a link by the selected planned developments.
- Impact per Link per Development: Contribution (percent) of each of the selected developments on the new aggregated traffic generated on a link by the selected planned developments.
- Instant Reserved Traffic per Link: Trips to be reserved based on the unfinished portion of approved developments (1-% of completion) x Development Trips per Link.
- Reserved Traffic at the Beginning of Year: Trips to be reserved based on the unfinished portion of an approved development at the beginning of the year (1-% of completion at the beginning of the year) x Development Trips per Link.

5.3. Link Status Report

- Link ID Number (Required): Unique identification number for the link assigned by the local government.
- Road Name (Required): Name of the road where the link is located.
- Start of Segment (Required): Link starting point (an intersection or a milepost).
- End of Segment (Required): Link ending point (an intersection or a milepost).
- Segment Length (Optional): Length of the road link in miles.



- Hurricane Evacuation Route (Required): “Yes” if the link belong to a hurricane evacuation route; “No” otherwise.
- Area Type (Required): Rural, Transitioning to Urbanized, according to the classification adopted by the local government; also used to determine the maximum service volume (MSV) using the FDOT generalized level of service table (FDOT, 2007).
- State Non-State Road (Required): Indicates if the road is a State, Non-State or other road classification; also used to determine the maximum service volume using the FDOT generalized level of service table (FDOT, 2007).
- Road Classification (Required): Road classification based on the number of signals per mile; criteria taken from the FDOT generalized level of service tables (FDOT, 2007).
- Median Type (Required): Divided or undivided; also used to determine the maximum service volume using the FDOT generalized level of service table (FDOT, 2007).
- Number of Lanes (Required): Total number of lanes in both directions (values 2, 4, 6, and 8).
- Signals per Mile (Optional): Traffic signal density; same use as Road Classification.
- Count Station ID (Optional): Unique traffic count station identifier or location identifier.
- Date of Count (Required): Date of the last day of count; this date is the year for which the traffic counts are applicable.
- Annual Average Daily Traffic (Required): Traffic count on the link.
- K-Factor (Required): Peak hour factor; established by the local government.
- Existing Peak Hour Traffic (Calculated): Traffic count converted to two-directional PM peak hour traffic.
- Annual Growth Factor (Optional): Rate that accounts for additional traffic increases; also used for forecasting future traffic additional growth.
- Adopted Level of Service (Required): Adopted level of service for the link; established by the local government; represented by a letter from A to E; used to determine the maximum service volume from the FDOT generalized level of service.



- Traffic Impact Level of Service (Optional): Level of service used for traffic impact area analysis; may be different than the adopted level of service for the link.
- Traffic Impact Volume (Optional): Maximum service volume (MSV) for the level of service selected for traffic impact area analysis.
- Traffic Impact Cut-Off Percentage (Optional): Critical value of the Existing Volume to Capacity Ratio (v/c) on the link; any value of v/c greater than or equal the Traffic Impact Cut-Off Percentage will change the traffic impact criteria.
- Min Trips if Less than Cut-Off (Optional): Minimum value (in Trips units) for the traffic impact threshold when the Existing Volume to Capacity Ratio (v/c) is less than the Traffic Impact Cut-Off Percentage.
- Percent if Less than Cut-Off (Optional): Percentage of maximum service volume used for calculating the Traffic impact threshold when the Existing Volume to Capacity Ratio (v/c) is less than the Traffic Impact Cut-Off Percentage.
- Min Trips if Greater or Equal to Cut-Off (Optional): Minimum value (in Trips units) for the traffic impact threshold when the Existing Volume to Capacity Ratio (v/c) is greater than or equal to the Traffic Impact Cut-Off Percentage.
- Percent if Greater or Equal to Cut-Off (Optional): Percentage of maximum service volume used for calculating the Traffic impact threshold when the Existing Volume to Capacity Ratio (v/c) is greater than or equal to the Traffic Impact Cut-Off Percentage.
- Traffic Impact Threshold (Optional): Threshold value that determines if the trips generated by a development may affect the level of service of the link; determined as follows:

IF (Existing Volume to Capacity Ratio < Traffic Impact Cut-Off Percentage)

THEN

{Traffic Impact Threshold=MINIMUM (Min Trips if Less than Cut-Off, Percent if Less than Cut-Off x Traffic Impact Maximum Service Volume)}

ELSE

{Traffic Impact Threshold=MINIMUM (Min Trips if greater or equal to Cut-Off, Percent if greater or equal to Cut-Off x Traffic Impact Maximum Service Volume)}



Default Values:

IF (Existing Volume to Capacity Ratio < 0.9)

THEN

{Traffic Impact Threshold=MINIMUM (75, 0.03 x Traffic Impact Maximum Service Volume)}

ELSE

{Traffic Impact Threshold= MINIMUM (25, 0.01 x Traffic Impact Maximum Service Volume)}

- Reserved Trips De Minims Dev. (Calculated): Total of *de minimis* trips approved on the link.
- Reserved Trips Regular Dev. (Calculated): Total trips generated regular development approved on the link.
- Vested Traffic (Calculated): Total of reserved *de minimis trips* and reserved regular trips.
- Additional Traffic Growth (Calculated): Increment in the traffic as a result of adjustment of traffic counts to reflect current traffic conditions on the link.
- Total Committed Traffic (Calculated): Sum of the existing traffic + vested traffic + additional traffic growth.
- Adopted Maximum Service Volume (Calculated): Maximum volume at which the link can operate at the selected level of service. This field is calculated based on the Generalized level Of Service Tables (FDOT 2007).
- Existing Volume to Capacity Ratio (Calculated): Utilization of the maximum service volume; obtained by dividing the existing traffic by the maximum service volume for the link.
- Remaining Capacity (Calculated): Remaining capacity with respect to the maximum service volume of the link.
- 110% Volume (Calculated): Volume 10% above the maximum service volume for the adopted level of service for the link.



- Concurrency Flag (Calculated): Mark used to indicate if a specific development will be included in the concurrency analysis; value retrieved from the Development Traffic spreadsheet.

5.4. Link Status Summary

- Link ID Number: Unique identification number for the link assigned by the local government.
- Road Name: Name of the road where the link is located.
- Start of Segment: Link starting point (intersection or milepost).
- End of Segment: Link ending point (intersection or a milepost).
- Existing Peak Hour Traffic: Traffic count converted to two-directional PM peak hour traffic.
- Vested Traffic: Total of reserved *de minimis* and reserved regular trips.
- Additional Traffic Growth: Increment in the traffic as a result of the adjustment of the traffic counts to reflect current traffic conditions on the link.
- Total Committed Traffic: Sum of existing traffic + vested traffic + additional traffic growth.
- Adopted Level of Service: Adopted level of service for the link; established by the local government; represented by a letter from A to E.
- Adopted Maximum Service Volume: Maximum volume at which the link can operate at the selected level of service.
- Remaining Capacity: Remaining capacity with respect to the maximum service volume of the link.

5.5. Concurrency Evaluation Report for Regular Developments

- Link ID Number: Unique identification number for the link assigned by the local government.
- Road Name: Name of the road where the link is located.
- Start of Segment: Link starting point (intersection or milepost).



- End of Segment: Link ending point (intersection or milepost).
- Existing Peak Hour Traffic: Traffic count converted to two-directional PM peak hour traffic.
- Remaining Capacity: Remaining capacity with respect to the maximum service volume of the link.
- Net Development Traffic: Sum of all trips for all developments under analysis (marked developments in the Development Information spreadsheet) that have trips on the link.
- Additional Traffic Growth: Increment in traffic as a result of adjustment of traffic counts to reflect current traffic conditions on the link; existing traffic is forecasted from the year of the traffic count to the latest expected completion date of the developments being analyzed.
- New Committed Traffic: Sum of existing traffic + vested traffic + additional traffic growth + development traffic.
- New Remaining Capacity: Remaining capacity with respect to the maximum service volume of the link including trips of developments under analysis.

5.6. Concurrency Evaluation Report for De Minimis Developments

- Link ID Number: Unique identification number for the link assigned by the local government.
- Road Name: Name of the road where the link is located.
- Start of Segment: Link starting point (intersection or milepost).
- End of Segment: Link ending point (intersection or milepost).
- Hurricane Evacuation Route: “Yes” if the link belongs to a hurricane evacuation route; “No” otherwise.
- Adopted Maximum Service Volume: The maximum volume at which the link can operate at the selected level of service.
- Remaining Capacity: Remaining capacity with respect to the maximum service volume of the link.
- Net Development Traffic: Sum of all trips for all developments under analysis (marked developments in the Development Information spreadsheet) that have trips on the link.



- Existing Peak Hour Traffic: Traffic count converted to two-directional PM peak hour traffic.
- 100% or 110% of Adopted Maximum Service Volume: Assumed value for service volume for *de minimis* trips acceptance; equal to the maximum service volume if the link is part of a hurricane evacuation route; otherwise it set to 110% of maximum service volume.
- Accept De Minimis Developments: Field indicating if the link can accept *de minimis* trips (Y) or not (N). The criteria for *de minimis* trips acceptance is:

IF (Existing Volume to Capacity Ratio > 110
THEN Accept *De minimis* Developments= N

IF (Existing Volume to Capacity Ratio is between 100 and 110) AND (link is a hurricane route)
THEN Accept *De Minimis* Developments= N

IF (Existing Volume to Capacity Ratio is between 100 and 110) AND (link is NOT a hurricane route)
THEN Accept *De Minimis* Developments= Y

IF (Existing Volume to Capacity Ratio <100
THEN Accept *De Minimis* Developments= Y

5.7. *De Minimis* Trips Report

- Link ID Number: Unique identification number for the link assigned by the local government.
- Road Name: Name of the road where the link is located.
- Start of Segment: Link starting point (intersection or milepost).
- End of Segment: Link ending point (intersection or milepost).
- Hurricane Evacuation Route: “Yes” if the link belong to a hurricane evacuation route; “No” otherwise.
- Adopted Level of Service: Adopted level of service for the link; established by the local government; represented by a letter from A to E.
- Adopted Maximum Service Volume: Maximum volume at which the link can operate at the selected level of service.



- Reserved Trips Regular Dev: Total trips generated by a regular development approved on the link.
- Reserved Trips De Minimis Dev.: Total of de minimis trips approved on the link.
- YTD Approved De Minimis Trips: Total of approved de minimis trips from a specific date to present; de minimis trips with approval date prior to the selected date will not be included in the calculation.
- Existing Peak Hour Traffic: Traffic count converted to two-directional PM peak hour traffic.
- 100% or 110% of Adopted Maximum Service Volume: Assumed value for service volume for de minimis trips acceptance; equal to the maximum service volume if the link is part of a hurricane evacuation route; otherwise set to 110% of the maximum service volume.
- Accept De Minimis Developments: Indicates if the link can accept de minimis trips (Y) or not (N).

6. References

Florida Department of Transportation (2007). “The Generalized Level of Service Tables”. Available: http://www.dot.state.fl.us/Planning/systems/sm/los/los_sw2.htm#Tables.

Seggerman, Williams, and Lin (2007). “Transportation Concurrency, Local and Multi-jurisdictional Best Practices”. Department of Community Affairs and Center for Urban Transportation Research.



Appendix 1

Quick Tutorial

Example 1

Development Name: Fairway Oaks
 Development Type: Regular
 Net New Traffic (PM peak hour): 150
 Expected completion Date: December 31 /2009
 Jurisdiction: Local

Traffic distribution on links (sample):

Link ID	Road Name	From	To	Traffic (%)
14	A1A Beach Blvd.	CR 13A	Allen Nease Rd.	30
15	Cracker Swamp Rd.	Allen Nease Rd.	Holmes Blvd.	30
16	Kings Estate Rd./Hilltop Rd.	Holmes Blvd.	Volusia St.	40

Example 2

Development Name: Golden Cake Bakery
 Development Type: de minimis
 Net New Traffic (PM peak hour): 10
 Expected completion Date: October 31 /2007
 Jurisdiction: Local

Traffic distribution on links (sample):

Link ID	Road Name	From	To	Traffic (%)
16	Kings Estate Rd./Hilltop Rd.	Holmes Blvd.	Volusia St.	100

Example 3

Development Name: Royal Supermarket
 Development Type: Regular
 Net New Traffic (PM peak hour): 300
 Expected completion Date: December 31/ 2010
 Jurisdiction: Local



Traffic distribution on links (sample):

Link Id	Road Name	From	To	Traffic (%)
12	CR 5A (Old Moultrie Rd)	SR 207	CR 13A	100
13	A1A Beach Blvd.	CR 13A	CR 214	70
14	A1A Beach Blvd.	CR 13A	Allen Nease Rd.	30
15	Cracker Swamp Rd.	Allen Nease Rd.	Holmes Blvd.	15
16	Kings Estate Rd./Hilltop Rd.	Holmes Blvd.	Volusia St.	15

Example 4

Development Name: Snob Hair Saloon
 Development Type: *De minimis*
 Net New Traffic (PM peak hour): 10
 Expected completion Date: November 11 /2007
 Jurisdiction: Local

Traffic distribution on links (sample):

Link ID	Road Name	From	To	Traffic (%)
16	Kings Estate Rd./Hilltop Rd.	Holmes Blvd.	Volusia St.	100

1. Enter a development traffic impact analysis study (planned development)

Open the application CMS_v1.0.xls. In the Development Submittal form, enter the project name and development type, as shown below for example 1:

CMS
Concurrency Management System

Deve

Development Name: Fairway Oaks

Type: Regular
DeMinimis

Net New PM Peak Hour Trips:

In Date: 8/30/2007

Expected Completion Date:

Jurisdiction:

Dates can be entered by selecting the desired location and then double clicking the calendar on the right hand side. The submission date default is the current date but it can be changed if necessary.



Development Information Input Form

Type	Regular	Net New PM Peak Hour Trips	150
Expected Completion Date	Jurisdiction		

Aug 2009

Aug	2009				
Jan	Feb	Mar	Apr	May	Sat
26	27	28	29	30	1
2	3	4	5	6	8
9	10	11	12	13	15
16	17	18	19	20	22
23	24	25	26	27	29
30	31	1	2	3	5

OK

Development from different jurisdictions can be analyzed in the CMS. Jurisdiction names can be described in the list at the right of the development input form. The initial size of the list is 11 but it can be expanded using the Data/Validation function of MS Excel. To enter the jurisdictions, select one from the drop down list.

Jurisdiction

Local
Jurisdiction 1
Jurisdiction 2
Jurisdiction 3
Jurisdiction 4
Jurisdiction 5
Jurisdiction 6
Jurisdiction 7

Jurisdiction names can be customized by modifying the Jurisdictions list, which can be displayed by clicking on the “+” button above the columns.

+	
M	S

Jurisdictions



Jurisdictions list:

M	N	O
---	---	---

Jurisdictions

- Local
- Jurisdiction 1
- Jurisdiction 2
- Jurisdiction 3
- Jurisdiction 4
- Jurisdiction 5
- Jurisdiction 6

To enter the traffic distribution (per link), click on the first row of the link traffic table (only in the shaded area). Then select the desired link from the drop-down menu.

OK

Link Id	Road Name	From	To	Development Traffic Distribution (Percent)	Development Traffic Assignment (Vehicle/Hour)
linkId	roadName	from	to	linkTraffic	linkVolume

14 OK

linkId	roadName	from	to	Development Traffic Distribution (Percent)	Development Traffic Assignment (Vehicle/Hour)
linkId	roadName	from	to	linkTraffic	linkVolume
14	A1A Beach Blvd.	CR 13A	Allen Nease Rd.		
15	Cracker Swamp Rd.	Allen Nease Rd.	Holmes Blvd.		
16	Kings Estate Rd./Hilltop Rd.	Holmes Blvd.	Volusia St.		
17	Faver Dykes Rd.	Volusia St.	Palmer St.		
18	Federal Point Rd.	Palmer St.	SR 5 (US 1)		
19	Four Mile Rd./Volusia St.	SR 206	SR 207		
20	George Miller Rd.	CR 13	SR 207		0
21	Greenbriar Rd.	SR 5 (US 1)	Kings Estate Rd.		

Enter the traffic percentages, e.g. 30, in the Development Traffic Column (linkTraffic). Notice that the big headers are for explanatory titles, which can be



changed at the user’s discretion. The small headers are the “working headers” name and changing these may cause problems.

At the end, the Development Submittal form for Example 1 should look like this:

Link Id	Road Name	From	To	Development Traffic Distribution (Percent)	Development Traffic Assignment (Vehicle/Hour)
linkId	roadName	from	to	linkTraffic	linkVolume
14	A1A Beach Blvd.	CR 13A	Allen Nease Rd.	30	45
15	Cracker Swamp Rd.	Allen Nease Rd.	Holmes Blvd.	30	45
16	Kings Estate Rd./Hill	Holmes Blvd.	Volusia St.	40	60

Press the “OK” button to submit the development information.



2. Traffic Impact Evaluation

Select the Development Information spreadsheet.



Locate the recently added development. Its status should be “Planned.”

Development Information Save Copy Date Picker Calculate

Tip

Development Identification Number	Development Name	Development Type	Development Jurisdiction	Development Traffic	Input Date	Approval Date	Expiration Date	Elapsed Time (years)	Expected Completion Date	Development Status
developmentId	developmentName	devType	jurisdiction	totalTraffic	inputDate	approvalDate	expirationDate	elapsedTime	exCompletionDate	status
44	The Oaks	Regular	Local	200	12/1/2006	12/12/2006	8/29/2008	0.7	12/23/2009	Approved
45	Royal Bakery	DeMinimis	Local	10	8/29/2007	8/30/2007	8/29/2008	0.0	6/29/2008	Approved
46	University Village	Regular	Local	300	4/11/2007	5/16/2007	5/15/2008	0.3	9/25/2009	Approved
48	University Store	DeMinimis	Local	15	8/30/2007	8/30/2007	8/29/2008	0.0	10/3/2007	Approved
49	Fairway Oaks	Regular	Local	150	8/30/2007				12/31/2009	Planned



To evaluate one or more developments, select the value of “Y” in the concurrency analysis flag column. This means that the project(s) will be included in the analysis.

Expected Completion Date	Development Status	Concurrency Flag
12/23/2009	Approved	
6/29/2008	Approved	
9/25/2009	Approved	
10/3/2007	Approved	
12/31/2009	Planned	<input type="text" value="Y"/>

Make sure that the Y is in the correct row and then proceed to the next step.

Expected Completion Date	Development Status	Concurrency Flag
12/23/2009	Approved	
6/29/2008	Approved	
9/25/2009	Approved	
10/3/2007	Approved	
12/31/2009	Planned	Y

To view the traffic distribution corresponding to the selected project, proceed to the Link Volumes spreadsheet.



The Link Volumes spreadsheet contains the information related to level of service, k factor and the counts per link. It also contains the following reports:

Link Summary: Quick view of the main attributes of the links, such as adopted level of service, maximum service volume, committed traffic, and remaining capacity.

Concurrency Evaluation Report for Regular Developments: Traffic impact area of the development under analysis; also contains link information and development information.



Concurrency Evaluation for *De Minimis* Developments: Llink attributes regarding the approval of de minimis trips on each link (such as hurricane evacuation routes), the current ratio of existing volume to maximum adopted service volume, and other pertinent attributes.

De Minimis Trips Report: *De minimis* trips approved and reserved per link; also contains link information relevant to the *de minimis* impact development approval.

Important:
Before any analysis, press the “Calculate” button.

The automatic calculation of MS Excel was disabled for the CMS because as the amount of information grows, This feature may cause unnecessary delays for the user.

CMS

Concurrency Management System

From: Through:

Link Status Report

Link ID Number	Road Name	Start of Segment	End of Segment	Concurrency Flag
linkId	roadName	from	to	concurrencyFlag
1	CR 214	SR A234	A1A Beach Blvd.	N
2	CR 214	SR A11	A1A Beach Blvd.	N
3	CR 214 (W. King St)	SR A	A1A Beach Blvd.	N
4	CR 214 (W. King St)	SR 207	Co. Landfill Entrance	N
5	CR 214 (W. King St)	Co. Landfill Entrance	CR 214	N

In the Link Volumes spreadsheet, scroll to the right to view the current Link Status Report.

Tip

Link Status Summary

Link Id	Road Name	Start of Segment	End of Segment	Existing Peak Hour Traffic	Vested Traffic	Additional Traffic Growth	Total Committed Traffic	Adopted Level of Service	Adopted Maximum Service Volume	Remaining Capacity
linkId	roadName	from	to	trafficPH	vestedTraffic	additionalGrowth	committedTraffic	adoptedLOS	serviceVolume	remainingCapacity
1	CR 214	SR A234	A1A Beach Blvd	2,970	210	15	3,195	C	3,300	105
2	CR 214	SR A11	A1A Beach Blvd	2,223	130	11	2,364	D	2,470	106
3	CR 214 (W. Ki	SR A	A1A Beach Blvd	1,239	65	6	1,310	C	1,180	(130)
4	CR 214 (W. Ki	SR 207	Co. Landfill En	2,594	210	13	2,816	D	2,470	(346)
5	CR 214 (W. Ki	Co. Landfill Entra	CR 214	2,766	340	14	3,120	C	2,470	(650)
6	CR 305	CR 210A (Rosco	CR 210 (Palm	2,766	240	14	3,020	D	2,470	(550)



To view only the impacted links, press the “Marked Links” button.



After filtering the results, only the Marked Links will be displayed.

Tip ▲

Link Status Summary

End of Segment	Concurrency Flag	Link Id	Road Name	Start of Segment	End of Segment
to	concurrencyFlag	linkId	roadName	from	to
Nease Rd.	Y	14	A1A Beach Bl	CR 13A	Allen Nease R
ies Blvd.	Y	15	Cracker Swam	Allen Nease Rd.	Holmes Blvd.
sia St.	Y	16	Kings Estate F	Holmes Blvd.	Volusia St.

The Concurrency Evaluation report is located at the left of the Link Status summary. This report contains the effect of the new development on the links of its traffic distribution area. The links marked in red correspond to the traffic impact area of the project and should be studied in more detail. The method for determining the traffic impact area in this spreadsheet system is based on the model approach proposed in *Transportation Concurrency: Best Practices Guide* (CUTR 2007), published by the Florida Department of Community Affairs.

Concurrency Evaluation Report

Regular Developments

Link Id	Road Name	Start of Segment	End of Segment	Existing Peak Hour Traffic	Remaining Capacity	Net Development Traffic	Additional Traffic Growth	New Committed Traffic	New Remaining Capacity
linkId	roadName	from	to	trafficPH	remainingCapacity	totalTraffic	additionalGrowth	newCommitted	newRemCapacity
14	A1A Beach Blvd.	CR 13A	Allen Nease Rd.	2,350	108	45	35	2,430	40
15	Cracker Swamp R	Allen Nease Rd.	Holmes Blvd.	2,300	159	45	35	2,380	90
16	Kings Estate Rd.	Holmes Blvd.	Volusia St.	2,200	1,089	60	33	2,293	1,007

3. Entering a *De Minimis* Impact Development

To enter a *de minimis* development, the procedure is the same as in the case of regular developments. Developments with a *de minimis* impact will have only one link with all the traffic (100%). The sample development from Example 2 is shown below:



Development Name	Type	Net New PM Peak Hour Trips
Golden Cake	DeMinimis	10
In Date	Expected Completion Date	Jurisdiction
8/30/2007	10/31/2007	Local

Link Id	Road Name	From	To	Development Traffic Distribution (Percent)	Development Traffic Assignment (Vehicle/Hour)
linkId	roadName	from	to	linkTraffic	linkVolume
16	Kings Estate Rd./Hill Holmes Blvd.		Volusia St.	100	10

4. Analyzing Several Developments at the Same Time

After entering all of the sample developments, the development information spreadsheet may look like this:

Development Identification Number	Development Name	Development Type	Development Jurisdiction	Development Traffic	Input Date	Approval Date	Expiration Date	Elapsed Time (years)	Expected Completion Date	Development Status
developmentId	developmentName	devType	jurisdiction	totalTraffic	inputDate	approvalDate	expirationDate	elapsedTime	exCompletionDate	status
44	The Oaks	Regular	Local	200	12/1/2006	12/12/2006	8/29/2008	0.7	12/23/2009	Approved
45	Royal Bakery	DeMinimis	Local	10	8/29/2007	8/30/2007	8/29/2008	0.0	6/29/2008	Approved
46	University Village	Regular	Local	300	4/11/2007	5/16/2007	5/15/2008	0.3	9/25/2009	Approved
48	University Store	DeMinimis	Local	15	8/30/2007	8/30/2007	8/29/2008	0.0	10/3/2007	Approved
49	Fairway Oaks	Regular	Local	150	8/30/2007				12/31/2009	Planned
50	Golden Cake	DeMinimis	Local	10	8/30/2007				10/31/2007	Planned
51	Royal Supermarket	Regular	Local	300	8/30/2007				12/31/2010	Planned
52	Snob Hair Saloon	DeMinimis	Local	10	8/30/2007				11/11/2007	Planned

Mark the developments Fairway Oaks and Royal Supermarket (both regular developments) with a “Y” in the concurrency flag column:

12/31/2009	Planned	Y
10/31/2007	Planned	
12/31/2010	Planned	Y
11/11/2007	Planned	

Proceed to the Development Traffic spreadsheet for further analysis of the traffic impact of the marked developments.

DevelopmentSubmittal / DevelopmentInformation / **DevelopmentTraffic** / GeneralizedLOS / LinkVolumes



The links in the traffic distribution of the selected developments will show a ‘Y’ in the concurrency flag column to indicate combined trip distributions from both sample developments.

Development Id	Development Name	Development Type	Development Jurisdiction	Development Total Traffic	Road Name	From	To	Development Traffic per Link (percent)	Development Trips per Link	Concurrency Flag	Total Traffic on the link selected developments	Impact per Link
44	The Oaks	Regular	Local	200	CR 214	SR A234	A1A Beach Bl	20	40	0		
44	The Oaks	Regular	Local	200	CR 214	SR A11	A1A Beach Bl	20	40	0		
44	The Oaks	Regular	Local	200	CR 214 (W. King St)	SR A	A1A Beach Bl	10	20	0		
44	The Oaks	Regular	Local	200	CR 214 (W. King St)	SR 207	Co. Landfill En	30	60	0		
44	The Oaks	Regular	Local	200	CR 214 (W. King St)	Co. Landfill	CR 214	20	40	0		
45	Royal Bakery	DeMinimis	Local	10	CR 214	SR A234	A1A Beach Bl	100	10	0		
46	University Village	Regular	Local	300	CR 214	SR A234	A1A Beach Bl	20	60	0		
46	University Village	Regular	Local	300	CR 214	SR A11	A1A Beach Bl	30	90	0		
46	University Village	Regular	Local	300	CR 214 (W. King St)	SR A	A1A Beach Bl	10	30	0		
46	University Village	Regular	Local	300	CR 214 (W. King St)	SR 207	Co. Landfill En	50	150	0		
46	University Village	Regular	Local	300	CR 214 (W. King St)	Co. Landfill	CR 214	100	300	0		
46	University Village	Regular	Local	300	CR 305	CR 210A (RCR 210 (Palm		80	240	0		
46	University Village	Regular	Local	300	CR 305	CR 13	SR 206	60	180	0		
46	University Village	Regular	Local	300	CR 5A (Old Moultrie Rd)	CR 204	Cowpen Branc	10	30	0		
48	University Store	DeMinimis	Local	15	CR 214 (W. King St)	SR A	A1A Beach Bl	100	15	0		
49	Fairway Oaks	Regular	Local	150	A1A Beach Blvd.	CR 13A	Allen Nease R	30	45	Y	135	33.3%
49	Fairway Oaks	Regular	Local	150	Cracker Swamp Rd.	Allen Nease	Holmes Blvd.	30	45	Y	90	50.0%
49	Fairway Oaks	Regular	Local	150	Kings Estate Rd./Hilltop Rd.	Holmes Blv	Volusia St.	40	60	Y	105	57.1%
50	Golden Cake	DeMinimis	Local	10	Kings Estate Rd./Hilltop Rd.	Holmes Blv	Volusia St.	100	10	0		
51	Royal Supermarket	Regular	Local	300	CR 5A (Old Moultrie Rd)	SR 207	CR 13A	100	300	Y	300	100.0%
51	Royal Supermarket	Regular	Local	300	A1A Beach Blvd.	CR 13A	CR 214	70	210	Y	210	100.0%
51	Royal Supermarket	Regular	Local	300	A1A Beach Blvd.	CR 13A	Allen Nease R	30	90	Y	135	66.7%
51	Royal Supermarket	Regular	Local	300	Cracker Swamp Rd.	Allen Nease	Holmes Blvd.	15	45	Y	90	50.0%

To show only the links in the traffic distribution of the selected developments, click the “Marked Links” button on top of the concurrency flag column.



After filtering, only the links of the selected developments are shown:

Development Id	Development Name	Development Type	Development Jurisdiction	Development Total Traffic	Road Name	From	To	Development Traffic per Link (percent)	Development Trips per Link	Concurrency Flag	Total Traffic on the link selected developments	Impact per Link
49	Fairway Oaks	Regular	Local	150	A1A Beach Blvd.	CR 13A	Allen Nease R	30	45	Y	135	33.3%
51	Royal Supermarket	Regular	Local	300	A1A Beach Blvd.	CR 13A	CR 214	70	210	Y	210	100.0%
51	Royal Supermarket	Regular	Local	300	A1A Beach Blvd.	CR 13A	Allen Nease R	30	90	Y	135	66.7%

The previous view showed the contribution per project to the traffic generated in the link. The contribution is shown as a percentage. Notice that when a link has new distributed trips solely from one development, the contribution is 100%. The function illustrated above will provide the percentage of trips contributed from a specific development in relation to the total new distributed trips contributed from multiple developments on a link.

Proceed to the Link Volumes spreadsheet for the joint impact of the sample developments.





In the concurrency report, the link will be marked in red if it is significantly impacted by the development. When distributed development trips on a link exceed a predefined threshold value (local policy), the development significantly impacts this link. In the spreadsheet system, the traffic impact area is comprised of all the links marked in red. In the example below, three links are significantly impacted by the combination of the two sample developments. With this function in the spreadsheet system, the traffic impact area can be easily identified.

Concurrency Evaluation Report

Regular Developments

Link Id	Road Name	Start of Segment	End of Segment	Existing Peak Hour Traffic	Remaining Capacity	Net Development Traffic	Additional Traffic Growth	New Committed Traffic	New Remaining Capacity
12	CR 5A (Old Moultri SR 207		CR 13A	1,200	(26)	300	24	1,524	(344)
13	A1A Beach Blvd. CR 13A		CR 214	1,200	1,264	45	24	1,269	1,201
14	A1A Beach Blvd. CR 13A		Allen Nease Rd.	2,350	108	45	47	2,442	28
15	Cracker Swamp R Allen Nease Rd.		Holmes Blvd.	2,300	159	210	46	2,556	(86)
16	Kings Estate Rd./ Holmes Blvd.		Volusia St.	2,200	1,089	90	44	2,334	966

5. Development Approval

The CMS can provide results for one development at a time. To change the status of a project, proceed to the development information spreadsheet. From this spreadsheet system, the user can approve the previously entered planned development. Once the development is identified as approved, the distributed development trips will automatically become vested trips.

DevelopmentSubmittal	DevelopmentInformation	DevelopmentTraffic	GeneralizedLOS	LinkVolumes
----------------------	-------------------------------	--------------------	----------------	-------------

Locate the target project to be approved.

46	University Village	Regular	Local	300	4/11/2007	5/16/2007	5/15/2008	0.3	9/25/2009	Approved
48	University Store	DeMinimis	Local	15	8/30/2007	8/30/2007	8/29/2008	0.0	10/3/2007	Approved
49	Fairway Oaks	Regular	Local	150	8/30/2007				12/31/2009	Planned
50	Golden Cake	DeMinimis	Local	10	8/30/2007				10/31/2007	Planned

Change the project status in the corresponding cell, as shown below.



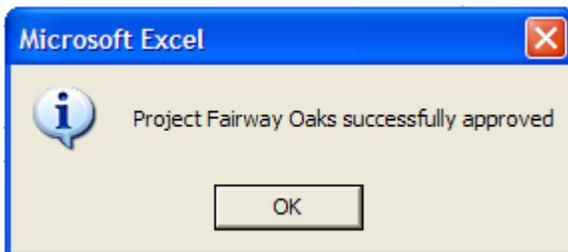
10/31/2007	Planned
12/31/2010	Planned
11/11/2007	Planned

A dropdown menu is open over the 'Planned' status of the 11/11/2007 entry, showing the following options: Planned, Pending, Approved (highlighted), Denied, Expired, Cancelled, and Completed.

The user is prompted to confirm the operation:

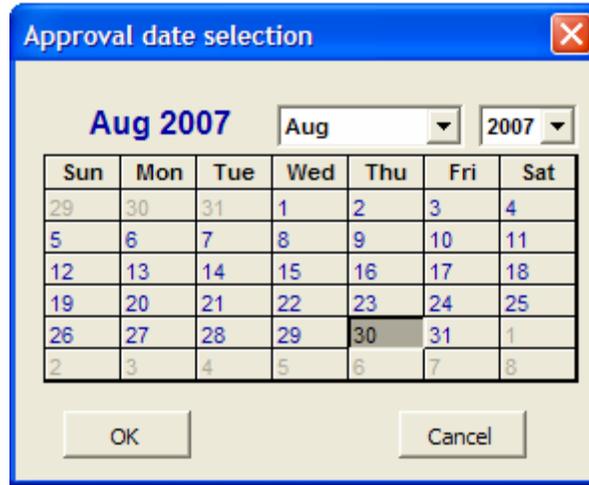


Another confirmation message is shown after updating the status of a project to "Approved":





A date selection form will pop up, allowing users to select the approval date. The default date is the current date. To select a date, double click on the desired date or select the date and press the “OK” Button.



The changes can be observed in the Link Volumes spreadsheet.

Traffic distribution from the Development Traffic spreadsheet:

Link Id	Road Name	From	To	Development Traffic per Link (percent)	Development Trips per Link	Concurrency Flag
link	roadName	from	to	linkTraffic	linkVolume	concurrency
14	A1A Beach Blvd.	CR 13A	Allen Nease R	30	45	0
15	Cracker Swamp Rd.	Allen Nease	Holmes Blvd.	30	210	0
16	Kings Estate Rd./Hilltop Rd.	Holmes Blvd	Volusia St.	40	90	0

Before (Link Status Report)

Link ID Number	Road Name	Start of Segment	End of Segment	Reserved Trips DeMinimis Dev	Reserved Trips Regular Dev.	Vested Traffic
linkId	roadName	from	to	reservedDeMi	reservedReg	vestedTra
14	A1A Beach Blvd.	CR 13A	Allen Nease	0	0	0
15	Cracker Swamp F	Allen Nease	Holmes Blvd	0	0	0
16	Kings Estate Rd./	Holmes Blvd	Volusia St.	0	0	0



After (Link Status Report)

Link ID Number	Road Name	Start of Segment	End of Segment	Reserved Trips DeMinimis Dev	Reserved Trips Regular Dev.	Vested Traffic
14	A1A Beach Blvd.	CR 13A	Allen Nease	0	45	45
15	Cracker Swamp F	Allen Nease	Holmes Blvd	0	210	210
16	Kings Estate Rd.	Holmes Blvd	Volusia St.	0	90	90

6. De Minimis Trips Report

Assuming that sample developments 2 and 4 were approved, then the development information spreadsheet may look as follows:

Development Identification Number	Development Name	Development Type	Development Jurisdiction	Development Traffic	Input Date	Approval Date	Expiration Date	Elapsed Time (years)	Expected Completion Date	Development Status
44	The Oaks	Regular	Local	200	12/1/2006	12/12/2006	8/29/2008	0.7	12/23/2009	Approved
45	Royal Bakery	DeMinimis	Local	10	8/29/2007	8/30/2007	8/29/2008	0.0	6/29/2008	Approved
46	University Village	Regular	Local	300	4/11/2007	5/16/2007	5/15/2008	0.3	9/25/2009	Approved
48	University Store	DeMinimis	Local	15	8/30/2007	8/30/2007	8/29/2008	0.0	10/3/2007	Approved
49	Fairway Oaks	Regular	Local	150	8/30/2007	8/30/2007	8/29/2008	0.0	12/31/2009	Approved
50	Golden Cake	DeMinimis	Local	10	8/30/2007	8/30/2007	8/29/2008	0.0	10/31/2007	Approved
51	Royal Supermarket	Regular	Local	300	8/30/2007				12/31/2010	Planned
52	Snob Hair Saloon	DeMinimis	Local	10	8/30/2007	8/30/2007	8/29/2008	0.0	11/11/2007	Approved

In the Link Volumes spreadsheet, scroll to the right until the *De minimis* Trips Report is found.

Calculate From Date: 9/7/2006

De Minimis Trips Report

Link Id	Road Name	Start of Segment	End of Segment	Hurricane Evacuation Route	Adopted Level of Service	Adopted Maximum Service Volume	Reserved Trips Regular Dev.	Reserved De Minimis Trips	YTD Approved DeMinimis Trips	Existing Peak Hour Traffic	100% or 110% of Adopted Maximum Service Volume	Accept DeMinimis Trips
14	A1A Beach Blvd.	CR 13A	Allen Nease Rd.	Yes	D	2,470	45	0	0	2,350	2,470	Y
15	Cracker Swamp R	Allen Nease Rd.	Holmes Blvd	Yes	C	2,470	210	0	0	2,300	2,470	Y
16	Kings Estate Rd.	Holmes Blvd.	Volusia St.	No	D	3,300	90	20	20	2,200	3,630	Y



Custom reports can be generated from any date specified by the user. The date can be entered in the From Date cell located on top of the *De Minimis* Trips Report.

From Date:
9/7/2006

The links with cumulative approved *de minimis* trips are shown in the report. A screenshot of the *De Minimis* Trips Report is shown below:

De Minimis Trips Report

Link Id	Road Name	Start of Segment	End of Segment	Hurricane Evacuation Route	Adopted Level of Service	Adopted Maximum Service Volume	Reserved Trips Regular Dev.	Reserved De Minimis Trips	YTD Approved De Minimis Trips
linkId	roadName	from	to	hurricaneRoute	adoptedLOS	serviceVolume	reservedRegul	reservedDeMinim	ytdDeMinimis
1	CR 214	SR A234	A1A Beach Blvd.	Yes	C	3,300	200	10	10
2	CR 214	SR A11	A1A Beach Blvd.	No	D	2,470	130	0	0
3	CR 214 (W. King)	SR A	A1A Beach Blvd.	Yes	C	1,180	50	15	15
4	CR 214 (W. King)	SR 207	Co. Landfill Entranc	No	D	2,470	210	0	0
5	CR 214 (W. King)	Co. Landfill Entranc	CR 214	Yes	C	2,470	340	0	0
6	CR 305	CR 210A (Roscoe)	CR 210 (Palm Vly F	No	D	2,470	240	0	0
7	CR 305	CR 13	SR 206	Yes	C	3,300	180	0	0
8	CR 5A (Old Moultr)	CR 204	Cowpen Branch Rd	No	D	1,170	30	0	0
9	CR 5A (Old Moultr)	Cowpen Branch Rd	George Miller Rd.	Yes	C	2,470	0	0	0
10	CR 5A (Old Moultr)	George Miller Rd.	SR 207 (W)	No	D	3,300	0	0	0
11	CR 5A (Old Moultr)	SR 207 (W)	SR 207 (E)	Yes	C	2,470	0	0	0
12	CR 5A (Old Moultr)	SR 207	CR 13A	No	D	1,180	0	0	0
13	A1A Beach Blvd.	CR 13A	CR 214	No	C	2,470	0	0	0
14	A1A Beach Blvd.	CR 13A	Allen Nease Rd.	Yes	D	2,470	45	0	0
15	Cracker Swamp R	Allen Nease Rd.	Holmes Blvd.	Yes	C	2,470	210	0	0
16	Kings Estate Rd./	Holmes Blvd.	Volusia St.	No	D	3,300	90	20	20