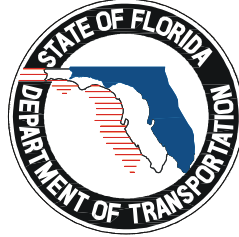


**Florida Department of Transportation
District V**



**CENTRAL FLORIDA
COMMUTER RAIL TRANSIT**

**OPERATIONS AND MAINTENANCE COST
METHODOLOGY REPORT**

Prepared by:
HDR Engineering, Inc.
1180 Peachtree St., Suite 2210
Atlanta, Georgia 30309

Submittal Date:
September 2010

TABLE OF CONTENTS

I.	INTRODUCTION	1
A.	Central Florida Commuter Rail Transit Project	1
B.	LYNX Bus Operations & Maintenance Cost Model	2
C.	VOTRAN Bus Operations & Maintenance Cost Model.....	2
D.	Commuter Rail Transit Operations & Maintenance Cost Model.....	3
II.	LYNX BUS O&M COST MODEL	4
A.	General Model Description	4
B.	Input Statistics.....	5
C.	Labor Costs.....	6
D.	Non-Labor Costs.....	7
E.	Line Item Detail	7
F.	Cost Summary	8
G.	Validation	8
III.	VOTRAN BUS O&M COST MODEL	8
IV.	COMMUTER RAIL TRANSIT O&M COST MODEL	9
A.	General Model Description	10
B.	Cost Model Structure	11
C.	Comparison to Existing Commuter Rail O&M Costs	13
Appendices		
A.	LYNX Bus O&M Cost Model	
B.	CFCRT O&M Cost Model	
Tables		
3.1	VOTRAN FY 2005 Motor Bus Unit Costs	9
4.1	Peer Commuter Rail Operating Characteristics and Costs	14
4.2	Comparison of CFCRT Model and Peer Agency O&M Costs.....	14
Figures		
3.1	VOTRAN Annual O&M Cost for Motor Bus Operations.....	8

OPERATING AND MAINTENANCE COST METHODOLOGY REPORT

I. INTRODUCTION

A. Central Florida Commuter Rail Transit Project

The Florida Department of Transportation (FDOT) is the sponsor agency for the Central Florida Commuter Rail Transit (CFCRT) project, which is in the Final Design (FD) phase of project development. FDOT is leading the CFCRT project, in association with the region's two MPOs, two transit agencies (LYNX and VOTRAN), and four counties.

The Alternatives Analysis (AA) study phase of the CFCRT project, completed in June 2004, concluded that the CFCRT was the region's Locally Preferred Alternative (LPA). The Environmental Assessment (EA), approved in December 2006, provided more detailed environmental analyses of the CFCRT alternatives. The LPA is about 48.7 miles long extending along the CSXT "A" Line from the Fort Florida station in Volusia County to Poinciana Blvd in Osceola County. The LPA option received a Finding of No Significant Impact (FONSI) from FTA in April 2007.

The CFCRT service includes sixteen station stops with daily bi-directional service. Rail transit service will be operated with diesel-multiple unit (DMU) cars. The communities directly impacted by the CFCRT are southwestern Volusia County, Sanford, Lake Mary, Longwood, Altamonte Springs, Maitland, Winter Park, Orlando, Edgewood, Meadowood, Orange County, Kissimmee and northwestern Osceola County.

Presented in this report are the operating and maintenance (O&M) cost methodologies for the CFCRT project. This report supersedes the O&M Cost Methodology Report prepared during the Preliminary Engineering phase (June 2008). Since the June 2008 O&M Cost Methodology Report, the commuter rail technology has been changed from self-propelled, diesel multiple units (DMUs) to standard "push-pull" locomotives and passenger cars. This change to push-pull operations resulted in adjustments to several labor productivity and non-labor unit costs in the commuter rail cost model. However, overall commuter rail O&M cost estimates changed little from the previous DMU-based estimates. The modified, push-pull model is described in this report.

Transit bus and commuter rail cost models were used to estimate annual operating and maintenance costs for the various study alternatives: No-Build, Transportation System Management (TSM) and Build (commuter rail). Three separate models are used to estimate project costs: (1) LYNX bus operations, (2) VOTRAN bus operations, and (3) commuter rail operations. Each model is used to estimate costs based on projected system operating characteristics.

B. LYNX Bus Operating and Maintenance (O&M) Cost Model

LYNX developed its first bus O&M cost model in 1996 and later updated the model in 2002 and again in 2005. The LYNX bus O&M cost model is “resource build-up” in form. This means that costs are disaggregated and cost drivers (e.g., hours or miles) are assigned to each cost unit. Line item costs are “built up” based on the quantity of service supplied and other bus system characteristics (e.g., bus maintenance facilities, passenger transit centers, superstops, etc.). Line item costs are all costs incurred by LYNX and are detailed by cost center (e.g., labor, fringes, materials, etc.).

The LYNX O&M cost model uses 14 system characteristics to define the LYNX transit system. These characteristics were developed as part of the operating plans for all CFCRT project alternatives. All line item costs are linked, directly or indirectly, to one or more input variables. The cost model requires the following inputs for each study alternative:

1. *Total Annual Bus Boardings*
2. *Peak Buses*
3. *Active Fleet Buses*
4. *Operating Divisions*
5. *Maintenance Facilities*
6. *Annual Revenue Bus-Miles*
7. *Annual Revenue Bus-Hours*
8. *Transit Centers*
9. *Superstops*
10. *Shelters*
11. *Advertising Shelters*
12. *Annual Service Vehicle-Miles*
13. *Vanpool Fleet*
14. *Total Annual Paratransit Boardings*

This model has been updated based on FY 2004 actual expenses and will be used along with operational and financial data inputs developed by the CFCRT project team to estimate bus O&M costs for this study. The analysis was conducted in 2004 dollars and the results will be escalated to 2010 year dollars. Section II describes the methodology applied to estimating annual O&M costs for LYNX bus operations.

C. VOTRAN Bus Operating and Maintenance (O&M) Cost Model

Cost estimates were developed for bus transit service provided by VOTRAN in west Volusia County using fully-allocated average costs per garage, peak bus, revenue bus-mile, and revenue bus-hour. Year 2005 cost per revenue bus hour was derived from financial and operations data reported by VOTRAN in its National Transit Database report for fiscal year 2005. Cost estimates were inflated from FY 2005 to 2010 year dollars. Section III describes the methodology applied to estimating annual O&M costs for VOTRAN bus operations.

D. Commuter Rail Transit (CRT) O&M Cost Model

Since urban rail transit does not currently operate in the Central Florida region, an O&M cost model was developed based on actual financial and operating data for a comparable rail transit system. In order to determine operational cost data representative of CFCRT, data were collected for U.S. peer commuter rail (CR) systems. Potential peer CR systems were identified based largely on system size. The proposed CFCRT system would be a fairly small, single route system which would be operated by a contract operator. Potential peer CR systems were first screened to eliminate the very large CR systems in New York, Boston, Philadelphia and Chicago. The eleven peer systems are:

- MetroLink – Los Angeles
- MARC – Maryland Transit Authority
- VRE – Virginia Rail Express
- Tri-Rail – Tri-County Commuter Rail Authority (Miami)
- Trinity Express – Dallas and Fort Worth
- Coaster – North San Diego County Transit
- Caltrain – San Francisco Bay Area
- ConnDOT – Connecticut Department of Transportation
- ACE – Altamont Commuter Express (California)
- FrontRunner – Salt Lake City
- Sounder -- Seattle

The rail transit model developed during the Alternatives Analysis project phase and later updated in the Preliminary Engineering project phase was based on operations and financial data from the Virginia Rail Express (VRE). During the Final Design phase, the model was modified to reflect push-pull operations and more detailed operations plans and staffing plans.

The CFCRT commuter rail cost model assumes an Oversight Agency is in place to oversee a Contract Operator and various contract services. The Contract Operator is assumed to have direct responsibility for operation of the service and maintenance of rail equipment at the Contract Operator's yard facility.

The CFCRT cost model is resource build-up in structure. Line item costs were determined by the quantity of service supplied and other system characteristics (e.g., stations, train-hours, car-miles, etc.). The following twelve (12) system characteristics were used to estimate rail transit O&M costs:

1. Annual Passenger Trips
2. Peak Passenger Cars
3. Peak Trainsets
4. Annual Revenue Train-Hours
5. Annual Revenue Car-Hours
6. Annual Revenue Train-Miles
7. Annual Revenue Car-Miles

8. Directional Route-Miles
9. Stations
10. Maintenance Yards
11. Weekly Revenue Train Trips
12. Cost of Diesel Fuel

CR cost estimates were developed in 2008 dollars and the results were inflated to 2010 dollars.

Section IV provides a general description of the model followed by a comparison of the model application to peer CRT system financial, operations and productivity data.

II. LYNX BUS O&M COST MODEL

The following sections include a general overview of the LYNX bus cost model structure, required inputs, and formulas used to estimate labor and non-labor expenses. The section concludes with a discussion of model validation.

A. General Model Description

The LYNX bus O&M cost model is “resource build-up” in form. This means that costs are disaggregated and cost drivers (e.g., hours or miles) are assigned to each cost unit. Costs are “built up” based on service requirements (e.g., service miles, hours, facilities, etc.). Line item costs (those costs shown in the first set of bullets below) would be determined by the quantity of service supplied and other bus system characteristics (e.g., bus maintenance facilities, passenger transit centers, superstops, etc.). Line item costs are all costs incurred by LYNX and are detailed by cost center (e.g., labor, fringes, materials, etc.). The cost model is based on LYNX’s 2004 organizational structure and budget for the following departments:

- Executive Director
- Administrative Support and Legal Affairs
- Human Resources
- Communications
- Planning and Development
- Bus Operations (including maintenance)

Appendix A includes a sample cost model spreadsheet with full details on costs by department and line item.

Within each modeled department, expenses are classified as one of the following cost types:

- Labor and Fringe Benefits
- Contract Services

- Materials
- Utilities
- Fuel
- Taxes
- Lease Payments
- Purchased Transportation (such as paratransit services)
- Casualty/Liability
- Miscellaneous

Each expense is modeled on a separate line, ensuring that equations are mutually exclusive and cover all operating costs. Many of the costs are correlated as evidenced by the fact that each cost driver may be assigned to several lines. The bus O&M costs model was developed with Microsoft Excel and includes the following tables:

- Input Statistics: These are variables that drive cost.
- Job Positions and Wages: These data are the result of operating requirements such as service miles and hours identified in the form of model input statistics.
- Line Item Detail: This is the detailed break down costs by department.
- Cost Summary by Department and Cost Type: This is the summary of costs by department.

Input statistics are variables that drive cost. Job positions and wages are the result of operating requirements (e.g., service miles and hours) identified in the form of model input statistics. The line item detail provides the detailed breakdown of costs by department. Sections B through F are brief descriptions of each element of the bus O&M cost model.

B. Input Statistics

A set of 14 physical and operating characteristics defines the LYNX transit system. These characteristics or input statistics have been identified for the existing LYNX service, and will be developed as part of the operating plans for all study alternatives. All line item costs are linked, directly or indirectly, to one or more input variables. The calibration process utilizes the existing operational costs and input or cost driving variables as the level of service or quantity of service provided to determine the unit cost assigned per driving variable for each cost line item. For example, the cost driver variable for Mechanic "A" is bus miles. Existing Mechanic "A" labor costs are divided by bus miles to achieve unit costs per bus mile, and FTE (full-time employees or FTEs) figures. Then, the proposed alternative bus miles would be multiplied by unit costs to determine proposed or estimated Mechanic "A" labor costs.

The cost model requires the following inputs for each study alternative:

1. **Total Annual Bus Boardings:** FY 2004 LYNX ridership was 22.68 million boardings (unlinked trips, per 2004 National Transit Database (NTD)). Annual ridership for the study alternatives are based on average weekday ridership forecasts multiplied by an annualization factor consistent with existing LYNX ridership. (LYNX FY 2004 NTD

motor bus ridership produces a 307.6 annualization factor.) Revenue collection and counting costs (staffing, materials, etc.) are dependent on fare revenue collected from passengers.

2. **Peak Buses:** This is the maximum number of directly operated buses in scheduled service during the AM or PM peak hour, whichever is greater. LYNX's peak vehicle requirement in FY 2004 was 195 buses (2004 NTD report).
3. **Active Fleet Buses:** This is the number of buses available for revenue service. In 2004 LYNX had 230 (2004 NTD report).
4. **Operating Divisions:** The number of garages from which fixed route motor buses are dispatched into revenue service. There were two operating divisions in FY 2004.
5. **Maintenance Facilities:** The number of garages where inspection and repair activities are carried out. There were two maintenance facilities in FY 2004 (South Street and Princeton Street).
6. **Annual Revenue Bus-Miles:** The total directly operated bus-miles in revenue service, excluding deadhead mileage. In FY 2004, LYNX provided 13.01 million revenue bus-miles of service (2004 NTD report).
7. **Annual Revenue Bus-Hours:** The total directly-operated bus-hours in service, excluding report and deadhead time. In FY 2004, LYNX provided 926,687 revenue bus-hours of service (2004 NTD report).
8. **Transit Centers:** In FY 2004, LYNX maintained one transit center. In Fall 2004, the existing Downtown Bus Station (DBS) replaced with the new LYNX Central Station (LCS).
9. **Superstops:** In FY 2004, LYNX maintained eight superstops.
10. **Shelters:** In FY 2004, LYNX maintained 233 bus shelters.
11. **Advertising Shelters:** In FY 2004, LYNX maintained 188 advertising bus shelters.
12. **Annual Service Vehicle-Miles:** LYNX's service vehicles accumulated 1.8 million miles in FY 2004. The composition of the service fleet is assumed to remain consistent as the system size expands. Although the service fleet comprises many different kinds of vehicles, the general make-up of the fleet is assumed to remain consistent as the system size expands.
13. **Vanpool Fleet:** In FY 2004, there were 57 vans available for LYNX vanpools.
14. **Total Annual Paratransit Boardings:** In FY 2004, LYNX served 569,000 paratransit passenger trips through contracts with private operators.

C. Labor Costs

Labor costs are a function of the number of employees in each job classification and the average annual cost per employee. The average cost per employee is based on actual

wages and fringe benefits paid by LYNX. The generalized equation for staff positions is in the form:

Annual Labor Cost	=	Value of Driving Variable	x	Labor Productivity Rate	x	Annual Cost Per Employee
-------------------	---	---------------------------	---	-------------------------	---	--------------------------

where:

- **Driving Variable Value:** The input variable for a specific position classification that most closely affects the number of labor positions needed for that classification (e.g., the number of bus-hours is the variable most responsible for determining the required number of bus operators). Cost drivers by line item are provided in Appendix A.
- **Labor Productivity Rate:** The number of budgeted positions divided by the value of the driving variable for the calibration (base) level of service. The labor productivity rate accounts for the total hours worked. This factor implicitly accounts for local union rules, hiring and training new employees, worker efficiency, and absenteeism.
- **Annual Cost per Employee:** Average annual earnings that include straight wages or salary, vacation, holiday and sick pay. Also included are fringe benefits, such as pension funds, social security, and medical insurance.

D. Non-Labor Costs

Non-labor costs include expense categories such as materials, utilities, and contract services. These expenses are generally a function of the base year cost, and the base and future values of the driving variables. Non-labor equations assume that current rates of consumption will continue in future years. Constituent elements of staff requirements may depend on more than one driving variable. This will be considered in preparing the line item detail table.

Cost equations to model non-labor costs will be generally of the form:

Annual Non-Labor Cost	=	Total Base Cost	x	Future Driving Variable	/	Base Driving Variable
-----------------------	---	-----------------	---	-------------------------	---	-----------------------

where:

- **Total Base Cost:** Actual expense in the base, or calibration year modeled.
- **Base Driving Variable:** The quantity of the input variable in the base or calibration year.
- **Future Driving Variable:** The projected quantity of the input variable for the future year.

E. Line Item Detail

The line item detail table (See Appendix A) in the bus O&M cost model combines labor and non-labor items and estimates costs and staffing requirements based on a particular set of input statistics that describe an operating alternative (multivariate analysis).

Staffing requirements (FTE's) are estimated according to the percentage change in the specified driving variable's value from FY 2004. For example, the number of drivers in

the Bus Operations department depends on projected annual revenue bus-hours of service. Non-labor expenses are calculated by the percentage change in an operating statistic. For example, the cost of maintenance parts depends on the number of projected annual bus-miles of service. Constituent elements of staff requirements may depend on more than one driving variable.

F. Cost Summary

The bus O&M cost model tabulates the cost estimate for each alternative operating scenario by department and cost type (e.g., labor, services, and materials).

G. Validation

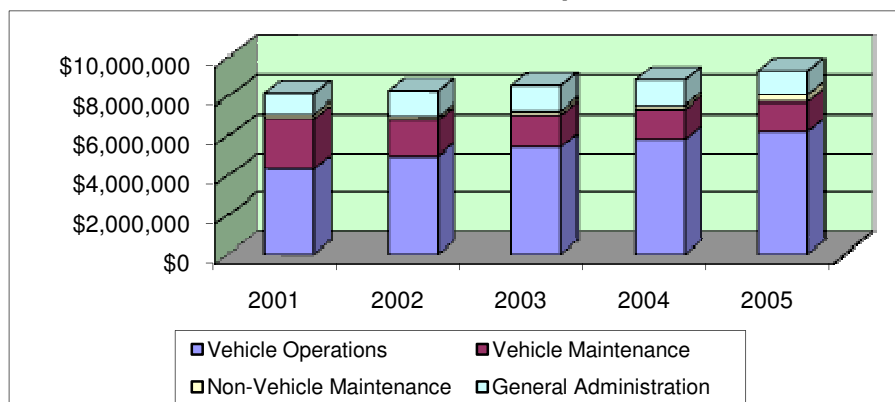
Following its development, the ability of the 2004 bus O&M cost model to accurately estimate O&M costs for future study alternatives was tested by applying the model to the prior fiscal year of operation. Input variables and actual O&M costs for prior years were obtained from LYNX’s NTD report (formerly Section 15) and additional information from LYNX staff. Modeled costs were deflated appropriately with Bureau of Labor Consumer Price Index data.

The LYNX O&M cost model estimates costs in 2004 dollars. These estimates then will be escalated to current year dollars (study base year) at 3.5 percent per annum.

III. VOTRAN BUS O&M COST MODEL

The CFCRT project would affect VOTRAN bus operations in west Volusia County. Because the impact on VOTRAN operations would be limited to a small number of bus routes, a simple unit cost per revenue hour will be used to estimate costs for the proposed service changes. Over the past five fiscal years, VOTRAN’s service levels have changed little – varying between 150,000 and 170,000 revenue vehicle hours each year. Figure 3.1 shows how VOTRAN’s annual O&M cost for fixed route motor bus operations has steadily grown, reflecting the effects of inflation and modest changes in service levels, over the past five fiscal years; from \$8.15 million in FY 2001 to \$9.34 million in FY 2006.

Figure 3.1
VOTRAN Annual O&M Cost for Motor Bus Operations, FY 2001 – FY 2006



VOTRAN's fiscal year 2005 motor bus operating costs, reported by Object Class and Function, were allocated to one of four variables: garages, annual revenue bus-hours, annual revenue bus-miles, and peak buses. Table 3.1, below, shows the allocation of annual O&M costs and the derivation of unit costs for directly operated fixed route bus service in fiscal year 2005. VOTRAN's fully allocated unit costs (in FY05 dollars) are listed below.

- Garages: \$554,098
- Bus-Hours: \$25.75
- Bus-Miles: \$1.14
- Peak Buses: \$29,629

Table 3.1
VOTRAN FY 2005 Motor Bus O&M Unit Costs

EXPENSE OBJECT	FULL ALLOCATION			
	Garages	Bus-Hrs	Bus-Miles	Peak Buses
501.01 Operators Salaries/Wages	0	2,623,542	0	0
501.02 Other Salaries/Wages	728,646	0	413,767	355,853
502.00 Fringe Benefits	338,918	1,252,759	156,849	89,975
503.00 Services	0	0	0	427,986
504.01 Fuel & Lubricants	0	0	1,350,686	0
504.02 Tires & Tubes	0	0	88,868	0
504.03 Other Materials & Supplies	0	0	734,162	0
505.00 Utilities	0	0	0	128,904
506.00 Casualty/Liability	0	0	196,693	0
507.00 Taxes	0	0	0	28,189
508.00 Purchased Transportation	0	0	0	0
509.00 Miscellaneous Expenses	40,631	0	0	213,504
510.00 Expense Transfers	0	0	0	0
Total Operating Expenses:	1,108,195	3,876,301	2,941,025	1,244,411
FY2005 Units of Service	2	150,523	2,582,915	42
Unit Cost (oper. expenses only)	\$554,098	\$25.75	\$1.14	\$29,629

Variables:

1. Garages = number of storage and maintenance garages.
2. Bus-hours = actual annual revenue bus-hours (Form S-10).
3. Bus-miles = actual annual revenue bus-miles (Form S-10).
4. Peak Buses = maximum buses in revenue service (Form S-10).

IV. COMMUTER RAIL TRANSIT O&M COST MODEL

The first step in developing annual operating and maintenance (O&M) cost estimates for Commuter Rail Transit (CRT) service is the development of an O&M cost model using representative financial and operational cost data. During the Preliminary Engineering phase more detailed engineering and operations analyses were conducted. The rail transit model was subsequently refined based on a detailed staffing plan developed by Vanasse Hangen Brustlin, Inc. (VHB) and revised Maintenance-of-Way (MOW) costs estimates developed by ZETA-TECH. Selected non-labor costs were updated using peer commuter rail system data (VRE and Albuquerque's RailRunner).

During the Final Design phase, the commuter rail technology has been changed from self-propelled, diesel multiple units (DMUs) to standard "push-pull" locomotives and passenger cars. This change to push-pull operations resulted in adjustments to several labor productivity and non-labor unit costs in the commuter rail cost model.

A. General Model Description

Consistent with Federal Transit Administration (FTA) requirements for alternatives analysis studies, the CFCRT cost model is resource build-up in structure. Resource build-up models compute costs by estimating the labor and materials needed to provide a given level of service, and then applying projected unit costs of labor and material to estimate O&M costs on the basis of system operating statistics.

The CFCRT cost model assumes that an Oversight Agency will oversee a Contract Operator and the other various contract services (e.g., station maintenance yards). The Contract Operator is assumed to have responsibility for operation of service and maintenance of rail equipment at a Contract Operator yard facility. Costs in the cost model are reported as: (a) operating agency expenses and (b) contract operator functions. The cost model is shown in a spreadsheet divided into two tables. The first table contains input variables, which are operating statistics that quantify the extent of the system and level of service. The second table relates specific budget categories to the most appropriate input variables.

The following sections describe general operating assumptions for the CFCRT project that impact the O&M cost model organization and unit costs.

Operating Entity

It is assumed that the CRT system would be the responsibility of an existing or new Operating Agency with a policy of structuring management and administrative practices to minimize overhead costs. Functions assumed to be performed by the Operating Agency are administration, purchasing, contract compliance, budgeting/finance, marketing/public information, service planning and contract oversight of operations, passenger and employee safety, scheduling, equipment and facilities maintenance and security.

Fare Collection and Structure

The fare collection method assumed for the CRT model is ticket vending machines (TVMs) with proof of payment inspection. The model assumes two-person train crews (one Engineer/Operator and one Conductor/Fare Inspector) with Conductors available to inspect fares aboard the trains.

Contract Philosophy

Functions that are most suitable for contracting generally include highly specialized tasks such as ticket vending machine maintenance or tasks where private sources are widely available, such as landscape maintenance or janitorial services. The CFCRT cost model assumes a high level of contract services including:

- Train operations – such as crew and extra board (train operators on standby to relieve or fill-in for ill or absent operators), transportation management, regulatory compliance and fare inspection.

- Maintenance of rolling stock – This includes a variety of tasks from management to inspection, routine/preventative maintenance, minor repairs, repair of major components (e.g., engine rebuilding, axle and wheel work, seat repair, HVAC equipment and other equipment not under warranty), major repair of vehicles (e.g., body and paint work following an accident) and warranty inspection.
- Maintenance of facilities – such as track and wayside equipment, buildings and grounds. Contracts for track-related maintenance would apply to all owned right-of-way (maintenance yard, outlying storage yards, and terminal stations). Other than the track itself, related maintenance includes inspection, troubleshooting and repair of signals and switches. Other equipment to be maintained under the Operator Contract will include ticket vending machines, shop equipment and communications systems (e.g., public address). Routine station maintenance and cleaning will be performed by each local jurisdiction; these costs are not included in the commuter rail cost model.
- Administration – yard security, audit and legal services, risk management, information systems and revenue collection.

Yards

The O&M cost model assumes the CRT system will have one maintenance yard and end-of-line overnight/midday storage yards/tracks. Work in the main yard will include vehicle inspection, maintenance, repair and overhaul. Spare vehicles, repair parts and materials will also be stored in the main yard. Light cleaning may be completed at the end-of-line yards/tracks.

Security

Security to protect facilities and equipment in the yards will be the responsibility of the Contract Operator. Local jurisdictions will be responsible for policing/patrolling station areas, parking lots, and railroad crossings as part of their routine duties. Conductors/Fare Inspectors will provide fare inspection as well as a security presence aboard all trains.

B. Cost Model Structure

The CRT O&M cost model consists of two tables, 1) Input Statistics and 2) Line Item Cost Detail. Following is a brief description of each of these model components.

Input Statistics

Directly or indirectly, input variables determine costs for every line item in the model. Input statistics must be developed for each CRT alternative based on proposed operating plans and ridership forecasts. The model input variables are:

1. Annual Passenger Trips – Total number of passenger boardings.
2. Peak Passenger Cars – The maximum number of passenger vehicles scheduled in service at the same time.

3. Peak Trainsets – The maximum number of trains in scheduled service at the same time.
4. Annual Revenue Train-Hours – Total hours of revenue service operated by all trains in one year.
5. Annual Revenue Car-Hours – Total hours of passenger car-hours operated by all trains in one year.
6. Annual Revenue Train-Miles – Total miles of revenue service operated by all trains in one year.
7. Annual Revenue Car-Miles – Total miles of revenue service operated by all passenger vehicles in one year.
8. Directional Route-Miles – Total miles of track in the system that is used for revenue train service, excluding maintenance yards, storage and rail track. For example, a five-mile segment of double track counts as ten directional route-miles.
9. Stations – Total number of passenger stations in the rail system.
10. Maintenance Yards – The number of yards with maintenance and shop facilities.
11. Number of Daily Train Trips – The number of scheduled revenue trips for an average weekday.
12. Cost of Diesel Fuel – The average cost of diesel fuel in 2008 dollars. This variable was used to test the sensitivity of the commuter rail costs to the price of fuel. For all New Starts cost estimates, the cost of diesel fuel was assumed to be \$2.50 per gallon (2008 dollars).

Line Item Detail

The Line Item Detail table includes a build-up of specific labor costs, by department and position, and non-labor expenses, by department and type of expense. The following departments were identified for the Contracting Agency and the Contract Operator:

Operating Agency

Executive Director's Office
Administration & Finance
Liability Insurance
Customer Service
Contract Operations

Contract Operator

General Manager's Office
Safety & Training
Operations
Equipment Maintenance
Engineering / Maintenance of Way

Administration & Finance Management Fee

Specific positions were identified in the staffing plan developed by Vanasse Hangen Brustlin, Inc. (VHB). Labor productivity factors were developed based on the staffing plan and staffing data derived from other commuter rail operators (e.g., Virginia Railway Express). Average labor wage rates and fringe benefit rates were derived for comparable positions at the Central Florida Regional Transit Authority (dba Lynx). Wage rates for specialized positions (e.g., Track and Signal Maintainers) were derived from other commuter rail operators. A list of Operating Agency and Contract Operator labor positions is shown in Appendix B.

Non-labor costs were derived from the Maintenance-of-Way cost estimates prepared by ZETA-TECH and cost data provided by other commuter rail operators (e.g., fuel, insurance, travel and training, etc.). A list of non-labor line items and unit costs is also shown in Appendix B.

For each labor and non-labor line item, the model then calculated the annual O&M cost based on the wage rate, productivity factor, and unit cost and the value of the corresponding input variable (e.g., annual revenue car-miles). Appendix B presents the Line Item Summary for the CFCRT model as applied for eight peer commuter rail systems (refer to section C below).

C. Comparison of Existing Commuter Rail O&M Costs

In order to determine operational cost data representative of CFCRT, data were collected for U.S. peer CRT systems. Potential peer CRT systems were identified based largely on system size. The proposed CFCRT system would be a fairly small, single route system which would be operated by a contract operator. Potential peer CRT systems were first screened to eliminate the very large CRT systems in New York, Boston, Philadelphia, Los Angeles and Chicago. The eleven peer systems are¹:

- Metrolink – Los Angeles
- MARC – Maryland Transit Authority
- VRE – Virginia Rail Express
- Tri-Rail – Tri-County Commuter Rail Authority (Miami)
- Trinity Express – Dallas and Fort Worth
- Coaster – North San Diego County Transit
- Caltrain – San Francisco Bay Area
- ConnDOT – Connecticut Department of Transportation
- ACE – Altamont Commuter Express (California)
- FrontRunner – Salt Lake City
- Sounder -- Seattle

These eleven systems differ significantly in terms of level of service supplied, organization structure, and type of equipment. The peer systems range in size from limited peak period operations on a single rail line (e.g., Altamont Commuter Express in San Jose) to larger operations on multiple rail lines (e.g., MetroLink). Some systems provide service

¹ Two recent commuter rail New Starts, Nashville's Music City Star and New Mexico's RailRunner, did not report a complete year of operations and expense data for FY 2008.

during peak, midday and evening periods, operating seven days a week, while other systems operate peak hour direction only service on weekdays with a limited number of daily trips. In addition, some CRT systems directly operate their own service, while others contract the operation of the service to an operations contractor while still managing the operation. Because of the differences in operating philosophy, system size, and service levels, the productivity factors for the eleven systems vary widely. The peer system, operations and financial data is presented in Table 4.1 (source: 2008 National Transit Database reports).

	Los Angeles Metrolink	Baltimore MARC	Wash. D.C. VRE	Miami Tri-Rail	Dallas Trinity Exp.	San Diego Coaster	SF Bay Caltrain	New York ConnDot	Oakland ACE	<i>NEW</i> Utah FrontRunner	<i>NEW</i> Seattle Sound Transit	Peer Average
TRS_ID:	9151	3034	3073	4077	6007/6056	9030	9134	1102	9182	8001	0040	
2008 Service Supplied												
Peak Trains in Operation	32	23	13	10	18	4	19	4	3	6	8	12.7
Peak Passenger Cars in Operation	141	109	67	27	34	20	96	19	15	18	38	53.1
Train Revenue Miles	2,417,659	1,032,478	309,074	1,041,468	419,998	256,166	1,403,673	196,021	173,376	501,939	192,073	722,175
Train Revenue Hours	59,305	26,389	9,674	25,540	14,778	6,244	40,280	4,403	4,367	24,237	5,079	20,027
Car Revenue Miles	10,420,447	5,124,244	1,809,232	2,856,470	1565010	1,284,363	6,727,225	681,959	780,192	1,505,817	1,039,433	3,072,217
Car Revenue Hours	255,953	127,311	57,115	76,620	54,743	31,313	192,762	15,327	19,652	72,711	27,006	84,592
Annual Passenger Trips	12,680,973	7,897,602	3,583,534	3,859,008	2,717,162	1,686,015	10,914,621	506,491	805,232	1,429,633	2,668,623	4,431,718
Directional Route Miles	777.8	400.4	161.4	142.2	62.7	82.2	153.6	101.2	172.0	87.8	147.0	208.0
# of Stations	55	42	18	18	9	8	32	8	10	8	10	20
# of Yards	1	4	2	2	1	1	3	1	1	1	1	1.6
2008 Costs												
Vehicle Operations	\$55,589,779	\$42,141,856	\$22,257,345	\$22,413,522	\$13,511,228	\$7,720,130	\$37,812,657	\$6,543,133	\$6,886,700	\$7,099,342	\$8,838,115	\$20,983,073
Vehicle Maintenance	\$20,520,779	\$16,090,527	\$13,348,315	\$10,930,343	\$8,886,152	\$3,355,833	\$12,774,216	\$3,525,874	\$696,491	\$2,434,275	\$9,561,122	\$9,283,993
Non-Vehicle Maintenance	\$21,997,593	\$12,259,449	\$2,646,984	\$2,909,172	\$2,930,793	\$1,744,913	\$6,878,779	\$1,332,856	\$3,501	\$5,109,110	\$2,836,141	\$5,513,572
General Administration	\$40,464,635	\$23,078,728	\$9,403,134	\$16,588,609	\$8,376,450	\$3,586,756	\$26,452,894	\$1,932,222	\$3,914,143	\$3,241,907	\$7,618,040	\$13,150,683
Total Costs in '08 dollars	\$138,572,786	\$93,570,560	\$47,655,778	\$52,841,646	\$33,704,623	\$16,407,632	\$83,918,546	\$13,334,085	\$11,500,835	\$17,884,634	\$28,853,418	\$48,931,322
Percent Vehicle Operations	40.1%	45.0%	46.7%	42.4%	40.1%	47.1%	45.1%	49.1%	59.9%	39.7%	30.6%	42.9%
Percent Vehicle Maintenance	14.8%	17.2%	28.0%	20.7%	26.4%	20.5%	15.2%	26.4%	6.1%	13.6%	33.1%	19.0%
Percent Non-Vehicle Maintenance	15.9%	13.1%	5.6%	5.5%	8.7%	10.6%	8.2%	10.0%	0.0%	28.6%	9.8%	11.3%
Percent General Administration	29.2%	24.7%	19.7%	31.4%	24.9%	21.9%	31.5%	14.5%	34.0%	18.1%	26.4%	26.9%
Productivity Factors (2008 \$)												
Cost per Revenue Train-Hour	\$2,336.61	\$3,545.82	\$4,926.17	\$2,068.98	\$2,280.73	\$2,627.74	\$2,083.38	\$3,028.41	\$2,633.58	\$737.91	\$5,680.92	\$2,443.28
Cost per Revenue Car-Mile	\$13.30	\$18.26	\$26.34	\$18.50	\$21.54	\$12.77	\$12.47	\$19.55	\$14.74	\$11.88	\$27.76	\$15.93
Cost per Passenger Trip	\$10.93	\$11.85	\$13.30	\$13.69	\$12.40	\$9.73	\$7.69	\$26.33	\$14.28	\$12.51	\$10.81	\$11.04
Notes:												
Source: 2008 National Transit Database Reports												

To verify that the CFCRT model is representative of typical commuter rail system costs, the CFCRT model was applied to the average system and operating characteristics for the eleven peer CR systems. Results of that verification test are shown below in Table 4.2.

**Table 4.2
Comparison of CFCRT Model and Peer Agency O&M Costs**

Cost Function	Peer Actual	Peer Model	Percent Difference
Vehicle Operations	\$20,983,073	\$19,682,092	93.8%
Vehicle Maintenance	\$9,283,993	\$8,754,363	94.3%
Non-Vehicle Maintenance	\$5,513,572	\$4,778,206	86.7%
General Administration	\$13,150,683	\$6,383,488	48.5%
Total O&M Costs	\$48,931,322	\$39,598,149	80.9%

Overall, the model costs are about 19 percent less than the actual costs; 73 percent of the cost difference occurs in the General Administration function. However, the following factors help to explain the cost difference:

- Several of the peer systems include Payments to Railroads costs in their NTD costs. For example, VRE paid \$8.3 million in property leases and access fees in FY 2008. Since the peer NTD costs include Payments to Railroads costs for several systems, the peer average costs for General Administration are not directly comparable to the CFCRT model which does not include Payments to Railroads costs.
- Several of the peer systems directly operate the commuter rail service. FDOT's operating philosophy is to maintain a minimal agency staff and contract with a Chief Operating contractor (to provide administrative functions and oversee the Contract Operator) and a Contract Operator. This operating philosophy will result in lower staffing levels, wage rates, and annual O&M costs. Recent commuter rail New Starts like New Mexico's RailRunner and Salt Lake City's FrontRunner, which have a similar operating system size and operating philosophy (i.e., contract operator) to CFCRT, have experienced significantly lower unit costs than the peer average.
- Unlike most of the peer systems, CFCRT local jurisdictions will be responsible for day-to-day station cleaning and maintenance as well as station security. This presents a significant cost savings to the CFCRT project.
- Some of the larger peer systems have more than one storage and maintenance (yard) facility. The CFCRT staffing plan is based on a single storage and maintenance facility. As a result, those peer system that have multiple yards would tend to have higher supervision costs for the Vehicle Operations and Vehicle Maintenance functions (e.g., more dispatchers, foremen, etc.) and would also have higher non-vehicle maintenance costs.

Given these organizational and operational differences, the CFCRT model has estimated annual O&M costs with an acceptable degree of accuracy.

APPENDIX A



CENTRAL FLORIDA REGIONAL TRANSPORTATION AUTHORITY O&M COST MODEL

System Characteristics & Cost Summary

Calibration Year - FY 2004

System Characteristic	Driving Variable	Input Value	Units
MOTOR BUS:			
Annual Boardings (Unlinked Trips)	BUSPASS	22.7	million
Peak Buses	PKBUS	195	
Active Fleet Buses	TOTBUS	230	
Operating Divisions	GARAGE	2	
Annual Revenue Vehicle-Miles	BUSMILE	13.01	million
Annual Revenue Vehicle-Hours	BUSHOUR	0.93	million
Agency Facilities	FACILITIES	3	
Transit Centers	CENTERS	1	
Superstops	SUPERSTOPS	8	
Shelters	SHELTERS	233	
Advertising Shelters	ADVSHELTERS	188	
Service Vehicle Miles	SERVMILES	1,856,770	
Vans	VANS	57	
Paratransit Trips	PARATRIPS	569,392	

Mode	Labor	Non-Labor	TOTAL	FTEs
TOTAL:				
All Modes	\$47,512,454	\$31,993,501	\$79,505,955	947.9
INCREMENTAL:				
All Modes			\$680,702	(1.1)
Total Cost per Revenue				
Mode	Bus Hour	Bus Mile	Passenger	Trip
Motor Bus	\$69.96	\$4.98	\$2.86	N/A
Paratransit	N/A	N/A	N/A	\$25.77

NOTES:
 All numbers are based on actual 2004 figures. Cost Model runs an estimate of what cost "should have" been using the assumptions under the O&M cost model.
 Incremental differences: (Total = actual expenses - estimated expenses) and FTEs = actual employees - estimated employees needed



CENTRAL FLORIDA REGIONAL TRANSPORTATION AUTHORITY
 O&M COST MODEL

Line Item Detail

Calibration Year - FY 2004						ESTIMATED		ESTIMATED		
Cost Item	Dept.	Div.	Cost Type	Ref. Code	Unit Cost	Cost Driver	Line Item		Cost	
							FTEs	Cost	FTEs	Cost
EXECUTIVE DIRECTOR'S OFFICE	10									
10 Executive	10	10							3.0	\$248,874
Wages & Salaries	10	10	LABOR		\$100,631	FIX	1.0	\$100,631		
Sr. Administrative Assistant	10	10	LABOR	101	\$45,624	Total Dept. 70 empl.	1.0	\$45,624		
Secretary	10	10	LABOR	101	\$45,624	Total Dept. 70 empl.	1.0	\$45,624		
Fringe Benefits	10	10	LABOR		26.39%	Div 10 Wages & Salaries		\$50,628		
Services	10	10	SERV		\$117	PKBUS		\$117		
Materials & Supplies	10	10	MATL		\$1,071	Div 10 empl.		\$1,071		
Cellular Communications	10	10	UTIL		\$795	Div 10 empl.		\$795		
Travel & Miscellaneous	10	10	MISC		\$4,384	Div 10 empl.		\$4,384		
11 Organizational Support	10	11							0.0	\$245,996
Services	10	11	SERV		\$158,438	Div 11 empl.		\$158,438		
Materials & Supplies	10	11	MATL		\$7,423	Div 11 empl.		\$7,423		
Utilities	10	11	UTIL		\$0	Div 11 empl.		\$0		
Travel & Miscellaneous	10	11	MISC		\$80,135	Div 11 empl.		\$80,135		
ADMIN. SUPPORT & LEGAL AFFAIRS	20									
20 Administrative Support & Legal Affairs	20	20							9.0	\$735,064
Wages & Salaries	20	20	LABOR		\$382,580	FIX	9.0	\$382,580		
Document Control Clerk	20	20	LABOR	103	\$20,574	Total Dept. 70 empl.	0.0	\$0		
Overtime	20	20	LABOR		1.35%	Div 20 Wages & Salaries		\$5,164		
Fringe Benefits	20	20	LABOR		46.34%	Div 20 Wages & Salaries, OT		\$179,676		
Professional Services	20	20	SERV		\$91,016	Total Dept. 70 empl.		\$91,016		
Other Services	20	20	SERV		\$45,122	Total Dept. 70 empl.		\$45,122		
Casualty & Liability	20	20	INS		\$0	BUSPASS		\$0		
Materials & Supplies	20	20	MATL		\$22,440	Div 20 empl.		\$22,440		
Cellular Communications	20	20	UTIL		\$1,378	Div 20 empl.		\$1,378		
Travel & Miscellaneous	20	20	MISC		\$7,688	Div 20 empl.		\$7,688		
21 Finance	20	21							11.0	\$2,513,221
Wages & Salaries	20	21	LABOR		\$199,095	FIX	5.0	\$199,095		
Fare Collection Clerk	20	21	LABOR	201	\$21,598	BUSPASS	3.0	\$64,794		
Accounting Technician	20	21	LABOR	202	\$31,808	Total Admin. Employees; FACILITIES	3.0	\$94,763		
Overtime	20	21	LABOR		5.57%	Div 21 Wages & Salaries		\$19,976		
Fringe Benefits	20	21	LABOR		54.64%	Div 21 Wages & Salaries, OT		\$206,867		
Professional Services	20	21	SERV		\$197,213	Total Admin. Employees; FACILITIES		\$195,848		
Other Services	20	21	SERV		\$54,225	Total Admin. Employees; FACILITIES		\$53,850		
Materials & Supplies	20	21	MATL		\$118,789	Div 21 empl.		\$118,565		
Cellular Communications	20	21	UTIL		\$528	Div 21 empl.		\$527		
Utilities	20	21	UTIL		\$274,678	FACILITIES,GAR.,CENTERS,SUPERSTOPS		\$274,678		
Property & Other Taxes	20	21	TAX		\$30,117	GARAGE		\$30,117		
Travel & Miscellaneous	20	21	MISC		\$16,787	Div 21 empl.		\$16,755		
Lease	20	21	LEASE		\$1,237,386	FIX		\$1,237,386		
22 Budget	20	22							2.0	\$146,673
Wages & Salaries	20	22	LABOR		\$92,830	FIX	2.0	\$92,830		
Fringe Benefits	20	22	LABOR		53.74%	Div 22 Wages & Salaries		\$49,884		
Materials & Supplies	20	22	MATL		\$3,500	Div 22 empl.		\$3,500		
Travel & Miscellaneous	20	22	MISC		\$459	Div 22 empl.		\$459		
23 Contracts/Procurement	20	23							10.0	\$777,911
Wages & Salaries	20	23	LABOR		\$141,183	FIX	6.0	\$141,183		
Buyer	20	23	LABOR	203	\$41,440	TOTBUS	3.0	\$124,320		
Document Control Clerk	20	23	LABOR	103	\$20,574	Total Dept. 70 empl.	1.0	\$20,574		
Fringe Benefits	20	23	LABOR		56.58%	Div 23 Wages & Salaries		\$150,221		
Direct Labor Contract	20	23	LABOR		\$0	TOTBUS		\$0		
Professional Services	20	23	SERV		\$302,002	Div 23 empl.		\$302,002		
Other Services	20	23	SERV		\$16,863	Div 23 empl.		\$16,863		
Materials & Supplies	20	23	MATL		\$4,014	Div 23 empl.		\$4,014		
Lease	20	23	LEASE		\$9,839	FIX		\$9,839		
Travel & Miscellaneous	20	23	MISC		\$8,895	Div 23 empl.		\$8,895		
24 South Street Material Control	20	24							9.0	\$448,310
Wages & Salaries	20	24	LABOR		\$63,879	FIX	1.0	\$63,879		
Inventory Control Clerk	20	24	LABOR	204	\$25,750	GARAGE	8.0	\$206,003		
Fringe Benefits	20	24	LABOR		55.52%	Div 24 Wages & Salaries		\$149,842		
Other Services	20	24	SERV		\$1,861	GARAGE		\$1,861		
Materials & Supplies	20	24	MATL		\$23,110	GARAGE		\$23,110		
Cellular Communications	20	24	UTIL		\$3,580	Div 24 empl.		\$3,580		
Travel & Miscellaneous	20	24	MISC		\$35	Div 24 empl.		\$35		



CENTRAL FLORIDA REGIONAL TRANSPORTATION AUTHORITY
 O&M COST MODEL

Line Item Detail

Calibration Year - FY 2004						ESTIMATED		ESTIMATED		
Cost Item	Dept.	Div.	Cost Type	Ref. Code	Unit Cost	Cost Driver	Line Item			
							FTEs	Cost	FTEs	Cost
25 Princeton Material Control	20	25							7.0	\$307,989
Wages & Salaries	20	25	LABOR		\$18,743	FIX	0.0	\$18,743		
Inventory Control Clerk	20	25	LABOR	204	\$25,750	GARAGE	7.0	\$180,253		
Fringe Benefits	20	25	LABOR		47.03%	Div 25 Wages & Salaries		\$93,585		
Other Services	20	25	SERV		\$1,532	GARAGE		\$1,532		
Materials & Supplies	20	25	MATL		\$13,876	GARAGE		\$13,876		
Telephone	20	25	UTIL		\$0	Div 25 empl.		\$0		
Travel & Miscellaneous	20	25	MISC		\$0	Div 25 empl.		\$0		
26 Grants	20	26							2.0	\$185,745
Wages & Salaries	20	26	LABOR		\$115,328	FIX	2.0	\$115,328		
Fringe Benefits	20	26	LABOR		59.72%	Div 26 Wages & Salaries		\$68,878		
Materials & Supplies	20	26	MATL		\$127	Div 26 empl.		\$127		
Travel & Miscellaneous	20	26	MISC		\$1,412	Div 26 empl.		\$1,412		
27 Risk Management	20	27							3.0	\$1,241,522
Wages & Salaries	20	27	LABOR		\$80,090	FIX	2.0	\$80,090		
Risk Management Assistant	20	27	LABOR	206	\$35,090	GARAGE	1.0	\$35,090		
Overtime	20	27	LABOR		0.01%	Div 27 Wages & Salaries		\$9		
Fringe Benefits	20	27	LABOR		64.64%	Div 27 Wages & Salaries		\$74,453		
Professional Services	20	27	SERV		\$313,487	Total Dept. 70 empl.		\$313,487		
Other Services	20	27	SERV		\$12,433	Total Dept. 70 empl.		\$12,433		
Materials & Supplies	20	27	MATL		\$1,444	Div 27 empl.		\$1,444		
Bus Casualty & Liability	20	27	INS		\$720,106	BUSPASS		\$720,106		
Cellular Communications	20	27	UTIL		\$432	Div 27 empl.		\$432		
Travel & Miscellaneous	20	27	MISC		\$3,978	Div 27 empl.		\$3,978		
28 Information Systems	20	28							9.0	\$1,114,816
Wages & Salaries	20	28	LABOR		\$142,442	FIX	3.0	\$142,442		
Programmer/Specialist	20	28	LABOR	102	\$32,916	Total Admin. Employees; FACILITIES	6.0	\$196,129		
Overtime	20	28	LABOR		1.35%	Div 28 Wages & Salaries		\$4,581		
Fringe Benefits	20	28	LABOR		49.51%	Div 28 Wages & Salaries, OT		\$169,901		
Contract Maintenance Service	20	28	SERV		\$225,012	Total Admin. Employees; FACILITIES		\$223,454		
Other Services	20	28	SERV		\$125,240	Total Admin. Employees; FACILITIES		\$124,373		
Materials & Supplies	20	28	MATL		\$15,976	Div 28 empl.		\$15,902		
Phone & Communications	20	28	UTIL		\$218,506	Total Admin. Employees; FACILITIES		\$216,993		
Travel & Miscellaneous	20	28	MISC		\$21,138	Div 28 empl.		\$21,040		
HUMAN RESOURCES DEPARTMENT	40	40								
40 Human Resources	40	40							17.0	\$1,283,512
Wages & Salaries	40	40	LABOR		\$437,324	FIX	14.0	\$437,324		
Recruiter	40	40	LABOR	401	\$33,000	Total Dept. 70 empl.	1.0	\$33,000		
Coordinator	40	40	LABOR	402	\$31,500	Total Dept. 70 empl.	2.0	\$63,000		
Overtime	40	40	LABOR		0.3%	Div 40 Wages & Salaries		\$1,444		
Fringe Benefits	40	40	LABOR		57.49%	Div 40 Wages & Salaries		\$306,625		
Professional Services	40	40	SERV		\$215,306	Total Dept. 70 empl.		\$215,306		
Other Services	40	40	SERV		\$77,356	Total Dept. 70 empl.		\$77,356		
Materials & Supplies	40	40	MATL		\$12,548	Div 40 empl.		\$12,548		
Cellular Communications	40	40	UTIL		\$583	Div 40 empl.		\$583		
Travel & Miscellaneous	40	40	MISC		\$136,326	Total Dept. 70 empl.		\$136,326		
COMMUNICATIONS DEPARTMENT	50	50								
50 Communications	50	50								
Wages and Salaries	50	50	LABOR		\$129,604	FIX	2.0	\$129,604	2.0	\$232,198
Fringe Benefits	50	50	LABOR		66.83%	Div 50 Wages & Salaries		\$86,620		
Other Services	50	50	SERV		\$6,865	Total Dept. ___ empl.		\$6,865		
Material and Supplies	50	50	MATL		\$743	Div 50 empl.		\$495		
Cellular Communications	50	50	UTIL		\$1,899	Div 50 empl.		\$1,266		
Travel and Miscellaneous	50	50	MISC		\$7,348	Total Dept. ___ empl.		\$7,348		
51 Marketing	50	51							9.0	\$1,672,590
Wages & Salaries	50	51	LABOR		\$145,074	FIX	5.0	\$145,074		
Marketing Project Manager	50	51	LABOR	501	\$38,500	PKBUS, ADVSHELTERS	4.0	\$154,000		
Overtime	50	51	LABOR		1.18%	Div 51 Wages & Salaries		\$3,521		
Fringe Benefits	50	51	LABOR		52.77%	Div 51 Wages & Salaries, OT		\$159,678		
Professional Services	50	51	SERV		\$116,185	PKBUS, ADVSHELTERS		\$116,185		
Marketing/Promotion Services	50	51	SERV		\$891,086	PKBUS, ADVSHELTERS		\$891,086		
Other Services	50	51	SERV		\$1,670	PKBUS, ADVSHELTERS		\$1,670		
Materials & Supplies	50	51	MATL		\$186,665	PKBUS, ADVSHELTERS		\$186,665		
Cellular Communications	50	51	UTIL		\$1,311	Div 51 empl.		\$1,311		
Travel & Miscellaneous	50	51	MISC		\$13,400	Div 51 empl.		\$13,400		



CENTRAL FLORIDA REGIONAL TRANSPORTATION AUTHORITY
 O&M COST MODEL

Line Item Detail

Calibration Year - FY 2004						ESTIMATED		ESTIMATED		
Cost Item	Dept.	Div.	Cost Type	Ref. Code	Unit Cost	Cost Driver	Line Item		Cost	
							FTEs	Cost	FTEs	Cost
52 Sales	50	52							2.0	\$2,466
Wages, Salaries & Commissions	50	52	LABOR		\$2,304	PKBUS	2.0	\$2,304		
Fringe Benefits	50	52	LABOR		5.25%	Div 52 Wages & Salaries		\$121		
Services	50	52	SERV		\$0	PKBUS		\$0		
Materials & Supplies	50	52	MATL		\$0	Div 52 empl.		\$0		
Cellular Communications	50	52	UTIL		\$41	Div 52 empl.		\$41		
Travel & Miscellaneous	50	52	MISC		\$0	Div 52 empl.		\$0		
53 Customer Service	50	53							24.0	\$830,155
Wages & Salaries	50	53	LABOR		(\$607)	FIX	1.0	(\$607)		
Customer Service Rep., I-III	50	53	LABOR	502	\$21,558	BUSPASS, CENTERS	20.0	\$431,161		
PT Customer Service Rep I-III	50	53	LABOR	503	\$8,131	BUSPASS	1.0	\$8,131		
CSR Supervisor	50	53	LABOR	504	\$37,307	# of CSRs	2.0	\$74,614		
Overtime	50	53	LABOR		1.36%	Div 53 Wages & Salaries		\$6,960		
Fringe Benefits	50	53	LABOR		58.27%	Div 53 Wages & Salaries, OT		\$303,129		
Services	50	53	SERV		\$0	Div 53 empl.		\$0		
Materials & Supplies	50	53	MATL		\$1,924	Div 53 empl.		\$1,924		
Cellular Communications	50	53	UTIL		\$272	Div 53 empl.		\$272		
Travel & Miscellaneous	50	53	MISC		\$4,571	Div 53 empl.		\$4,571		
57 Business Relations	50	57							7.0	\$967,668
Wages & Salaries	50	57	LABOR		\$185,996	FIX	7.0	\$185,996		
Cust Relations Rep	50	57	LABOR	505	\$28,080	BUSPASS	0.0	\$0		
Overtime	50	57	LABOR		0.53%	Div 57 Wages & Salaries		\$987		
Fringe Benefits	50	57	LABOR		49.48%	Div 57 Wages & Salaries, OT		\$92,522		
Professional Services	50	57	SERV		\$473,413	Div 57 empl.		\$473,413		
Marketing/Promotion Services	50	57	SERV		\$96,391	Div 57 empl.		\$96,391		
Other Services	50	57	SERV		\$41,518	Div 57 empl.		\$41,518		
Materials & Supplies	50	57	MATL		\$28,419	Div 57 empl.		\$28,419		
Telephone	50	57	UTIL		\$1,214	Div 57 empl.		\$1,214		
Cellular Communications	50	57	UTIL		\$539	Div 57 empl.		\$539		
Bus Casualty & Liability	50	57	INS		\$4,915	BUSPASS		\$4,915		
Vehicle Registration	50	57	TAX		\$60	TOTBUS		\$60		
Purchased Transportation Services	50	57	PT		\$82	PARATRIPS		\$82		
Travel & Miscellaneous	50	57	MISC		\$41,612	Div 57 empl.		\$41,612		
PLANNING & DEVELOPMENT DEPT.	60									
60 Planning & Development Support	60	60							2.0	\$142,110
Wages & Salaries	60	60	LABOR		\$93,450	FIX	2.0	\$93,450		
Overtime	60	60	LABOR		2.70%	Div 60 Wages & Salaries		\$2,519		
Fringe Benefits	60	60	LABOR		45.72%	Div 60 Wages & Salaries, OT		\$43,879		
Services	60	60	SERV		\$0	Dept 60 empl.		\$0		
Cellular Communications	60	60	UTIL		\$75	Dept 60 empl.		\$75		
Materials & Supplies	60	60	MATL		\$695	Div 60 empl.		\$695		
Travel & Miscellaneous	60	60	MISC		\$1,492	Div 60 empl.		\$1,492		
61 Strategic Planning & Programming	60	61							5.0	\$1,770,688
Wages & Salaries	60	61	LABOR		\$60,559	FIX	2.0	\$60,559		
Planning Project Manager	60	61	LABOR	601	\$40,487	GARAGE	3.0	\$121,461		
Fringe Benefits	60	61	LABOR		51.12%	Div 61 Wages & Salaries		\$93,050		
Professional Services	60	61	SERV		\$1,464,302	GARAGE		\$1,464,302		
Other Services	60	61	SERV		\$3,829	GARAGE		\$3,829		
Materials & Supplies	60	61	MATL		\$16,398	Div 61 empl.		\$16,398		
Cellular Communications	60	61	UTIL		\$631	Div 61 empl.		\$631		
Travel & Miscellaneous	60	61	MISC		\$10,458	Div 61 empl.		\$10,458		
62 Service Planning & Scheduling	60	62							5.0	\$228,872
Wages & Salaries	60	62	LABOR		\$203,266	FIX	5.0	\$203,266		
PT Transit Surveyor	60	62	LABOR	602	\$7,679	PKBUS	0.0	\$0		
Overtime	60	62	LABOR		0.6%	Div 62 Wages & Salaries		\$1,218		
Fringe Benefits	60	62	LABOR		0.97%	Div 62 Wages & Salaries		\$1,978		
Professional Services	60	62	SERV		\$18,509	GARAGE		\$18,509		
Materials & Supplies	60	62	MATL		\$1,563	Div 62 empl.		\$1,563		
Cellular Communications	60	62	UTIL		\$360	Div 62 empl.		\$360		
Travel & Miscellaneous	60	62	MISC		\$1,978	Div 62 empl.		\$1,978		



CENTRAL FLORIDA REGIONAL TRANSPORTATION AUTHORITY
 O&M COST MODEL

Line Item Detail

Calibration Year - FY 2004						ESTIMATED		ESTIMATED		
Cost Item	Dept.	Div.	Cost Type	Ref. Code	Unit Cost	Cost Driver	Line Item		Line Item	
							FTEs	Cost	FTEs	Cost
70 Office of Transit Operations	70	70						2.0	\$209,487	
Wages & Salaries	70	70	LABOR		\$123,499	FIX		2.0	\$123,499	
Overtime	70	70	LABOR		4.09%	Div 70 Wages & Salaries			\$5,054	
Fringe Benefits	70	70	LABOR		60.09%	Div 70 Wages & Salaries, OT			\$77,253	
Services	70	70	SERV		\$0	GARAGE			\$0	
Materials & Supplies	70	70	MATL		\$1,180	Div 70 empl.			\$1,180	
Cellular Communications	70	70	UTIL		\$710	Div 70 empl.			\$710	
Travel & Miscellaneous	70	70	MISC		\$1,791	Div 70 empl.			\$1,791	
71 South Street -Transportation	70	71								378.0 \$18,766,406
Transportation Wages	70	71	LABOR		\$418,844	FIX		1.0	\$418,844	
FT Bus Operator	70	71	LABOR	701	\$30,876	BUSHOUR		326.0	\$10,065,717	
PT Bus Operator	70	71	LABOR	702	\$17,317	BUSHOUR		11.0	\$190,487	
Street Supervisor	70	71	LABOR	703	\$40,559	# Operators		32.0	\$1,297,888	
Dispatcher	70	71	LABOR	704	\$40,100	GARAGE		0.0	\$0	
Admin Supervisor	70	71	LABOR	705	\$40,548	GARAGE		1.0	\$40,548	
Relief Supervisor	70	71	LABOR	706	\$40,559	GARAGE		1.0	\$40,559	
Cash Control Receiver	70	71	LABOR	707	\$19,126	GARAGE		3.0	\$57,378	
Transportation Admin. Assistant	70	71	LABOR	708	\$30,882	GARAGE		1.0	\$30,882	
Admin. Specialist	70	71	LABOR	709	\$23,972	GARAGE		1.0	\$23,972	
Manager of Transportation	70	71	LABOR	710	\$50,481	GARAGE		1.0	\$50,481	
Operator Overtime	70	71	LABOR		2.01%	Operator Wages & Salaries			\$202,144	
Other Overtime	70	71	LABOR		0.00%	Other Div. 71 Wages & Salaries			\$0	
Fringe Benefits	70	71	LABOR		50.03%	Div 71 Wages & Salaries, OT			\$6,212,904	
Professional Services	70	71	SERV		\$11,536	GARAGE			\$11,536	
Other Services	70	71	SERV		\$29,227	BUSHOUR			\$29,227	
Materials & Supplies	70	71	MATL		\$27,162	Div 71 empl.			\$27,162	
Cellular Communications	70	71	UTIL		\$12,040	Div 71 empl.			\$12,040	
Travel & Miscellaneous	70	71	MISC		\$54,637	Div 71 empl.			\$54,637	
72 South Street -Vehicle Maintenance	70	72								87.0 \$8,740,255
Maintenance Wages	70	72	LABOR		(\$345,404)	FIX		5.0	(\$345,404)	
Administrative Clerk	70	72	LABOR	711	\$23,972	GARAGE		1.0	\$23,972	
Superintendent of Maintenance	70	72	LABOR	712	\$54,142	# Div. 72 Mechanic & Service staff		1.0	\$54,142	
Vehicle Maintenance Supervisor	70	72	LABOR	713	\$46,921	GARAGE		6.0	\$281,528	
Maintenance Admin. Assistant	70	72	LABOR	714	\$29,120	GARAGE		1.0	\$29,120	
Mechanic A	70	72	LABOR	715	\$39,562	BUSMILE		13.0	\$514,301	
Mechanic B	70	72	LABOR	716	\$36,858	BUSMILE		8.0	\$294,861	
Mechanic C	70	72	LABOR	717	\$35,589	BUSMILE		30.0	\$1,067,664	
Service Island Attendant	70	72	LABOR	718	\$28,499	TOTBUS		22.0	\$626,967	
Serviceperson	70	72	LABOR	719	\$16,234	PKBUS		0.0	\$0	
Fringe Benefits	70	72	LABOR		53.96%	Div 72 Wages & Salaries			\$1,374,547	
Maintenance Overtime	70	72	LABOR		3.81%	Mechanic & Service Wages & Salaries			\$95,286	
Maint. Admin. Overtime	70	72	LABOR		0.00%	Other Div. 72 Wages & Salaries			\$0	
Contract Maint. Service	70	72	SERV		\$172,009	PKBUS			\$172,009	
Other Services	70	72	SERV		\$11,368	BUSMILE			\$11,368	
Towing Service	70	72	SERV		\$27,761	PKBUS			\$27,761	
Fuel - Diesel	70	72	FUEL		\$2,229,882	BUSMILE			\$2,229,882	
Fuel - Compressed Natural Gas	70	72	FUEL		\$72,878	BUSMILE			\$72,878	
Fuel - Gasoline	70	72	FUEL		\$55,874	SERVMILES			\$55,874	
Oil & Lubricants	70	72	MATL		\$191,986	BUSMILE			\$191,986	
Tires & Tubes	70	72	MATL		\$355,644	BUSMILE			\$355,644	
Repair & Maintenance Parts	70	72	MATL		\$1,303,163	BUSMILE			\$1,303,163	
Small Tools	70	72	MATL		\$2,892	# Div. 72 Mechanics			\$2,892	
Other Materials & Supplies	70	72	MATL		\$211,751	TOTBUS			\$211,751	
Cellular Communications	70	72	UTIL		\$8,048	Div 72 empl.			\$8,048	
Casualty & Liability	70	72	INS		\$0	Div 72 empl.			\$0	
Vehicle Registration	70	72	TAX		\$269	TOTBUS			\$269	
Fuel & Lube Taxes	70	72	TAX		1.71%	Fuel, oil and lube cost			\$43,605	
Lease	70	72	LEASE		\$13,200	FIX			\$13,200	
Travel & Miscellaneous	70	72	MISC		\$22,941	Div 72 empl.			\$22,941	



CENTRAL FLORIDA REGIONAL TRANSPORTATION AUTHORITY
 O&M COST MODEL

Line Item Detail

Calibration Year - FY 2004							ESTIMATED		ESTIMATED	
Cost Item	Dept.	Div.	Cost Type	Ref. Code	Unit Cost	Cost Driver	Line Item		FTEs	Cost
							FTEs	Cost		
73 South Street -Facilities Maintenance	70	73							24.0	\$1,754,719
Maintenance Wages	70	73	LABOR		(\$39,853)	FIX	2.0	(\$39,853)		
Building & Grounds A/B	70	73	LABOR	720	\$36,207	GAR,CENTERS,SUPERSTOPS,SHELTERS	8.0	\$289,657		
Building & Groundskeeper	70	73	LABOR	721	\$25,303	GAR,CENTERS,SUPERSTOPS,SHELTERS	14.0	\$354,245		
Maintenance Overtime	70	73	LABOR		1.36%	Buildings & Grounds Wages & Salaries		\$8,743		
Fringe Benefits	70	73	LABOR		57.04%	Div 73 Wages & Salaries, OT		\$349,556		
Contract Maint. Services	70	73	SERV		\$542,917	BUSMILE		\$542,917		
Other Services	70	73	SERV		\$17,134	BUSMILE		\$17,134		
Repair/Maint. Buildings & Grounds	70	73	MATL		\$49,433	GARAGE		\$49,433		
Repair/Maint. Bus Stops & Shelters	70	73	MATL		\$92,999	SUPERSTOPS, SHELTERS		\$92,999		
Repair/Maint. Terminal	70	73	MATL		\$14,214	CENTERS		\$14,214		
Other Materials & Supplies	70	73	MATL		\$74,705	Div 73 empl.		\$74,705		
Travel & Miscellaneous	70	73	MISC		\$969	Div 73 empl.		\$969		
Leases	70	73	LEASE		\$0	GARAGE		\$0		
74 Access Lynx (Paratransit)	70	74							11.0	\$14,671,240
Wages & Salaries	70	74	LABOR		\$252,004	FIX	11.0	\$252,004		
Overtime	70	74	LABOR		3.56%	Div 74 Wages & Salaries		\$8,965		
Fringe Benefits	70	74	LABOR		59.72%	Div 74 Wages & Salaries, OT		\$155,848		
Materials & Supplies	70	74	MATL		\$0	Div 74 empl.		\$0		
Services	70	74	SERV		\$556,590	BUSMILE		\$556,590		
Services	70	74	SERV		\$52,712	BUSMILE		\$52,712		
Other Materials & Supplies	70	74	MATL		\$9,286	Div 74 empl.		\$9,286		
Telephone	70	74	UTIL		\$50,498	Div 74 empl.		\$50,498		
Cellular Communications	70	74	UTIL		\$3,382	Div 74 empl.		\$3,382		
Purchased Transportation Services	70	74	PT		\$13,579,029	PARATRIPS		\$13,579,029		
Travel & Miscellaneous	70	74	MISC		\$2,926	Div 74 empl.		\$2,926		
77 Princeton Transportation	70	77							204.0	\$10,110,702
Transportation Wages	70	77	LABOR		\$438,660	FIX	1.0	\$438,660		
FT Bus Operator	70	77	LABOR	701	\$30,876	BUSHOUR	197.0	\$6,082,657		
PT Bus Operator	70	77	LABOR	702	\$17,317	BUSHOUR	0.0	\$0		
Street Supervisor	70	77	LABOR	703	\$40,559	# Operators	2.0	\$81,118		
Dispatcher	70	77	LABOR	704	\$40,100	GARAGE	0.0	\$0		
Admin Supervisor	70	77	LABOR	705	\$40,548	GARAGE	1.0	\$40,548		
Relief Supervisor	70	77	LABOR	706	\$40,559	GARAGE	1.0	\$40,559		
Cash Control Receiver	70	77	LABOR	707	\$19,126	GARAGE	1.0	\$19,126		
Transportation Admin. Assistant	70	77	LABOR	708	\$30,882	GARAGE	1.0	\$30,882		
Transportation Clerk	70	77	LABOR	709	\$23,972	GARAGE	0.0	\$0		
Division Transportation Supt.	70	77	LABOR	710	\$50,481	GARAGE	0.0	\$0		
Operator Overtime	70	77	LABOR		0.30%	Operator Wages & Salaries		\$18,184		
Other Overtime	70	77	LABOR		0.00%	Other Div. 71 Wages & Salaries		\$0		
Fringe Benefits	70	77	LABOR		49.74%	Div 77 Wages & Salaries, OT		\$3,358,220		
Security Services	70	77	SERV		\$0	GARAGE		\$0		
Other Services	70	77	SERV		\$0	BUSHOUR		\$0		
Materials & Supplies	70	77	MATL		\$533	Div 77 empl.		\$533		
Cellular Communications	70	77	UTIL		\$0	Div 77 empl.		\$0		
Travel & Miscellaneous	70	77	MISC		\$215	Div 77 empl.		\$215		
78 Princeton Vehicle Maintenance	70	78							50.0	\$5,858,626
Maintenance Wages	70	78	LABOR		\$180,061	FIX	0.0	\$180,061		
Administrative Clerk	70	78	LABOR	711	\$23,972	GARAGE	0.0	\$0		
Superintendent of Maintenance	70	78	LABOR	712	\$54,142	# Div. 72 Mechanic & Service staff	1.0	\$54,142		
Vehicle Maintenance Supervisor	70	78	LABOR	713	\$46,921	GARAGE	5.0	\$234,607		
Maintenance Admin. Assistant	70	78	LABOR	714	\$29,120	GARAGE	1.0	\$29,120		
Mechanic A	70	78	LABOR	715	\$39,562	BUSMILE	18.0	\$712,109		
Mechanic B	70	78	LABOR	716	\$36,858	BUSMILE	7.0	\$258,003		
Mechanic C	70	78	LABOR	717	\$35,589	BUSMILE	18.0	\$640,598		
Service Island Attendant	70	78	LABOR	718	\$28,499	TOTBUS	0.0	\$0		
Serviceperson	70	78	LABOR	719	\$16,234	PKBUS	0.0	\$0		
Division Transportation Supt.	70	78	LABOR	710	\$50,481	GARAGE	0.0	\$0		
Operator Overtime	70	78	LABOR		204.72%	Operator Wages & Salaries		\$0		
Other Overtime	70	78	LABOR		0.00%	Other Div. 71 Wages & Salaries		\$0		
Fringe Benefits	70	78	LABOR		52.56%	Div 78 Wages & Salaries, OT		\$1,108,396		



CENTRAL FLORIDA REGIONAL TRANSPORTATION AUTHORITY
 O&M COST MODEL

Line Item Detail

Calibration Year - FY 2004						ESTIMATED		ESTIMATED		
Cost Item	Dept.	Div.	Cost Type	Ref. Code	Unit Cost	Cost Driver	Line Item		Cost	
							FTEs	Cost	FTEs	Cost
Contract Maint. Services	70	78	SERV		\$52,576	GARAGE		\$52,576		
Other Services	70	78	SERV		\$470	BUSHOUR		\$470		
Towing Service	70	78	SERV		\$15,906	PKBUS		\$15,906		
Fuel - Diesel	70	78	FUEL		\$1,187,184	BUSMILE		\$1,187,184		
Fuel - Compressed Natural Gas	70	78	FUEL		\$0	BUSMILE		\$0		
Fuel - Gasoline	70	78	FUEL		\$21,352	SERVMILES		\$21,352		
Oil & Lubricants	70	78	MATL		\$103,614	BUSMILE		\$103,614		
Tires & Tubes	70	78	MATL		\$453	BUSMILE		\$453		
Repair & Maintenance Parts	70	78	MATL		\$959,924	BUSMILE		\$959,924		
Small Tools	70	78	MATL		\$4,021	# Div. 72 Mechanics		\$4,021		
Other Materials & Supplies	70	78	MATL		\$97,244	TOTBUS		\$97,244		
Cellular Communications	70	78	UTIL		\$416	Div 78 empl.		\$416		
Fuel & Lube Taxes	70	78	TAX		16.48%	Fuel, oil and lube cost		\$198,369		
Travel & Miscellaneous	70	78	MISC		\$61	Div 78 empl.		\$61		
79 Princeton Facilities Maintenance	70	79							6.0	\$307,136
Maintenance Wages	70	79	LABOR		(\$12,422)	FIX	0.0	(\$12,422)		
Building & Grounds A/B	70	79	LABOR	720	\$36,207	GAR.,CENTERS,SUPERSTOPS,SHELTERS	3.0	\$108,621		
Building & Groundskeeper	70	79	LABOR	721	\$25,303	GAR.,CENTERS,SUPERSTOPS,SHELTERS	3.0	\$75,910		
Maintenance Overtime	70	79	LABOR		0.00%	Buildings & Grounds Wages & Salaries		\$0		
Fringe Benefits	70	79	LABOR		58.54%	Div 79 Wages & Salaries, OT		\$100,748		
Contract Maint. Services	70	79	SERV		\$9,461	BUSMILE		\$9,461		
Other Services	70	79	SERV		\$3,611	BUSMILE		\$3,611		
Repair/Maint. Buildings & Grounds	70	79	MATL		\$16,997	GARAGE		\$16,997		
Repair/Maint. Bus Stops & Shelters	70	79	MATL		\$0	SUPERSTOPS, SHELTERS		\$0		
Repair/Maint. Terminal	70	79	MATL		\$0	CENTERS		\$0		
Other Materials & Supplies	70	79	MATL		\$4,186	Div 79 empl.		\$4,186		
Travel & Miscellaneous	70	79	MISC		\$24	Div 79 empl.		\$24		
Leases	70	79	LEASE		\$0	GARAGE		\$0		
80 Lymmo Service	70	80							16.0	\$1,197,241
Operator Wages	70	80	LABOR		\$642,045	FIX	16.0	\$642,045		
Operator Overtime	70	80	LABOR		0.00%	Div 80 Wages & Salaries		\$0		
Fringe Benefits	70	80	LABOR		51.89%	Div 80 Wages & Salaries, OT		\$333,179		
Contract Maint. Services	70	80	SERV		\$6,869	BUSMILE		\$6,869		
Fuel - Compressed Natural Gas	70	80	FUEL		\$124,249	BUSMILE		\$124,249		
Oil & Lubricants	70	80	MATL		\$1,521	BUSMILE		\$1,521		
Tires & Tubes	70	80	MATL		\$3,692	BUSMILE		\$3,692		
Repair & Maintenance Parts	70	80	MATL		\$84,149	BUSMILE		\$84,149		
Other Materials & Supplies	70	80	MATL		\$1,537	TOTBUS		\$1,537		
Telephone	70	80	UTIL		\$0	Div 80 empl.		\$0		
83 Road Ranger	70	83							25.0	\$1,768,614
Wages & Salaries	70	83	LABOR		\$205,629	FIX	1.0	\$205,629		
Highway Helper	70	83	LABOR	722	\$32,401	FIX	24.0	\$777,629		
Operator Overtime	70	83	LABOR		0.06%	Div 83 Wages & Salaries		\$626		
Fringe Benefits	70	83	LABOR		47.41%	Div 83 Wages & Salaries, OT		\$466,411		
Fuel - Diesel	70	83	FUEL		\$50,710	BUSMILE		\$50,710		
Fuel - Gasoline	70	83	FUEL		\$4,767	BUSMILE		\$4,767		
Oil & Lubricants	70	83	MATL		\$740	BUSMILE		\$740		
Tires & Tubes	70	83	MATL		\$0	BUSMILE		\$0		
Repair & Maintenance Parts	70	83	MATL		\$15,048	BUSMILE		\$15,048		
Other Materials & Supplies	70	83	MATL		\$18,234	TOTBUS		\$18,234		
Materials & Supplies	70	83	MATL		\$0	Div 83 empl.		\$0		
Fuel & Lube Taxes	70	83	TAX		4.95%	Fuel, oil and lube cost		\$27,561		
Bus Casualty & Liability	70	83	INS		\$182,498	BUSPASS		\$182,498		
Travel & Miscellaneous	70	83	MISC		\$9,252	Div 83 empl.		\$9,252		
Cellular Communications	70	83	UTIL		\$9,509	Div 83 empl.		\$9,509		



CENTRAL FLORIDA REGIONAL TRANSPORTATION AUTHORITY
 O&M COST MODEL

Line Item Detail

Calibration Year - FY 2004						ESTIMATED		ESTIMATED		
Cost Item	Dept.	Div.	Cost Type	Ref. Code	Unit Cost	Cost Driver	Line Item		FTEs	Cost
							FTEs	Cost		
82 Volusia Express	70	82							0.0	\$137,901
Salaries & Wages	70	82	LABOR		\$79,773	FIX		\$79,773		
Overtime	70	82	LABOR		0.00%	Div 82 Wages & Salaries		\$0		
Fringe Benefits	70	82	LABOR		4.61%	Div 82 Wages & Salaries, OT		\$15,430		
Fuel - Diesel	70	82	FUEL		\$29,295	BUSMILE		\$29,295		
Oil & Lubricants	70	82	MATL		\$684	BUSMILE		\$684		
Tires & Tubes	70	82	MATL		\$3,321	BUSMILE		\$3,321		
Repair & Maintenance Parts	70	82	MATL		\$8,958	BUSMILE		\$8,958		
Materials & Supplies	70	82	MATL		\$440	Div 82 empl.		\$440		
Fuel & Lube Taxes	70	82	TAX		\$293	Fuel, oil and lube cost				
84 Operations Support	70	84							7.0	\$887,248
Wages & Salaries	70	84	LABOR		\$275,325	FIX	7.0	\$275,325		
Overtime	70	84	LABOR		0.86%	Div 84 Wages & Salaries		\$2,364		
Fringe Benefits	70	84	LABOR		21.68%	Div 84 Wages & Salaries, OT		\$60,209		
Professional Services	70	84	SERV		\$143,094	BUSMILE		\$143,094		
Security Services	70	84	SERV		\$379,078	BUSMILE		\$379,078		
Other Services	70	84	SERV		\$910	BUSMILE		\$910		
Other Materials & Supplies	70	84	MATL		\$6,926	Div 84 empl.		\$6,926		
Travel & Miscellaneous	70	84	MISC		\$17,272	Div 84 empl.		\$17,272		
Cellular Communications	70	84	UTIL		\$2,070	Div 84 empl.		\$2,070		
TOTAL							947.9	\$79,505,955	947.9	\$79,505,955
Labor								\$47,512,454		
Non-Labor								\$31,993,501		
Operating Modes:										
Motor Bus							936.9	\$64,834,715		
Paratransit							11.0	\$14,671,240		

APPENDIX B

Appendix B. Model Calibration	
Alternative:	Peer CR Systems (2008 NTD)
Forecast Year:	2008
System Characteristics	Input Value
Annual Passenger Trips	4,431,718
Peak Passenger Cars	53
Peak Trainsets	13
Revenue Train-Hours	20,027
Revenue Pass. Car-Hours	84,592
Revenue Train-Miles	722,175
Revenue Pass. Car-Miles	3,072,217
Directional Route Miles	208.0
Stations	20
Maintenance Yards	1.6
Daily Revenue Train Trips	72
Average Price of Diesel Fuel	\$2.50
Cost Type	O&M Cost 2008 \$
Operating Agency	
Executive Director's Office	\$859,954
Administration & Finance	\$2,350,227
Liability Insurance	\$4,266,107
Customer Service	\$1,497,232
Contract Operations	\$1,039,455
Total	\$10,012,974
Contract Operator	
General Manager's Office	\$391,500
Safety & Training	\$250,750
Operations	\$12,788,945
Equipment Maintenance	\$8,159,755
Engineering / Maintenance of Way	\$4,453,664
Administration & Finance	\$851,000
Management Fee	\$2,689,561
Total	\$29,585,175
TOTAL COST	\$39,598,149
Average Cost	
Cost per Train-Hour:	\$1,977.25
Cost per Car-Mile:	\$12.89
Cost per Passenger:	\$8.94

Central Florida Commuter Rail Transit Commuter Rail Operating and Maintenance Costs Appendix B-2. Line Item Detail			Alternative: Peer CR Systems (2008 NTD) Forecast Year: 2008				
Cost Item	FY 08 Salary	Cost Drivers	Productivity Factors Var. #1	Productivity Factors Var. #2	FTE's	Item Cost 2008\$	Dept. Cost 2008\$
OPERATING AGENCY							
Executive Director's Office							
Executive Director	\$150,000	Peak Cars (Salary)	\$15,000	\$135,000	1.0	\$150,000	
Administrative Assistant	\$35,000	Peak Cars (Salary)	\$3,500	\$31,500	1.0	\$35,000	
Fringe Benefits		Labor Costs	35.0%			\$64,750	
Travel, Training, Employee Expenses		% Dept. Salaries	7.5%			\$13,875	
Legal and Audit Services		Contract Cost	1.0%			\$295,852	
Materials & Supplies (Staff)		Labor Costs	2.5%			\$4,625	
Consulting & Professional Services		Contract Cost	1.0%			\$295,852	
			Office Subtotal:		2.0		\$859,954
Administration & Finance							
Director of Administration & Finance	\$120,000	Peak Cars (Salary)	\$12,000	\$108,000	1.0	\$120,000	
Administrative Assistant	\$35,000	Peak Cars (Salary)	\$3,500	\$31,500	1.0	\$35,000	
Manager of Revenue & Ticketing	\$90,000	Peak Cars (Salary)	\$9,000	\$81,000	1.0	\$90,000	
Manager of Accounting	\$90,000	Peak Cars (Salary)	\$9,000	\$81,000	1.0	\$90,000	
Budget Analyst	\$60,000	Peak Cars	0.0667		3.5	\$210,000	
Accountant	\$60,000	Peak Cars	0.0667		3.5	\$210,000	
Revenue Analyst	\$60,000	Peak Cars	0.0667		3.5	\$210,000	
Manager of Procurement	\$90,000	Peak Cars (Salary)	\$9,000	\$81,000	1.0	\$90,000	
Contracts Compliance Officer	\$60,000	Peak Cars	0.0667		3.5	\$210,000	
Manager of Information Technology	\$90,000	Peak Cars (Salary)	\$9,000	\$81,000	1.0	\$90,000	
Manager of Human Resources	\$90,000	Peak Cars (Salary)	\$9,000	\$81,000	1.0	\$90,000	
Fringe Benefits		Labor Costs	35.0%			\$505,750	
Travel, Training, Employee Expenses		% Dept. Salaries	2.5%			\$36,125	
Communications		Labor Costs	10.0%			\$144,500	
Materials & Supplies (Staff)		Labor Costs	2.5%			\$36,125	
Liability Insurance	\$4,099,475	Pk Cars, Rt-Miles (50/50)	\$1,624,215	\$2,641,892		\$4,266,107	
Consulting & Professional Services		Peak Cars	\$2,500	\$50,000		\$182,727	
			Office Subtotal:		21.0		\$6,616,334
Customer Service							
Director of Customer Service	\$110,000	Peak Cars (Salary)	\$11,000	\$99,000	1.0	\$110,000	
Manager of Public Information	\$80,000	Peak Cars (FTEs)	0.0179	0.75	1.0	\$80,000	
Customer Service Representatives	\$30,000	Rev. Pass. Car-Hours	0.0001		12.0	\$360,000	
Manager of Marketing	\$80,000	Peak Cars (FTEs)	0.0179	0.75	1.0	\$80,000	
Fringe Benefits		Labor Costs	35.0%			\$220,500	
Travel, Training, Employee Expenses		% Dept. Salaries	2.5%			\$15,750	
Marketing & PR Expenses		Pass. Trips	\$0.09			\$410,154	
Materials & Supplies (Staff)		Labor Costs	2.5%			\$15,750	
Consulting & Professional Services		Pass. Trips	\$0.05			\$205,077	
			Office Subtotal:		15.0		\$1,497,232
Contract Operations							
Director of Contract Operations	\$125,000	Peak Cars (Salary)	\$12,500	\$112,500	1.0	\$125,000	
Administrative Assistant	\$35,000	Peak Cars (FTEs)	0.0179	0.75	1.0	\$35,000	
Manager of Infrastructure	\$90,000	Peak Cars (Salary)	\$9,000	\$81,000	1.0	\$90,000	
Manager of Equipment	\$90,000	Peak Cars (Salary)	\$9,000	\$81,000	1.0	\$90,000	
Manager of Safety & Security	\$90,000	Peak Cars (Salary)	\$9,000	\$81,000	1.0	\$90,000	
Manager of AFC Maintenance	\$90,000	Peak Cars (Salary)	\$9,000	\$81,000	1.0	\$90,000	
AFC Maintainer	\$60,000	Stations	0.0833		1.5	\$90,000	
Manager of Railroad Operations	\$90,000	Peak Cars (Salary)	\$9,000	\$81,000	1.0	\$90,000	
Fringe Benefits		Labor Costs	35.0%			\$245,000	
Travel, Training, Employee Expenses		% Dept. Salaries	2.5%			\$17,500	
AFC Materials & Supplies	\$36,000	Stations	\$3,000			\$59,455	
Materials & Supplies (Staff)		Labor Costs	2.5%			\$17,500	
			Office Subtotal:		8.5		\$1,039,455
			Operating Agency Subtotal:		46.5		\$10,012,974

Central Florida Commuter Rail Transit Commuter Rail Operating and Maintenance Costs Appendix B-2. Line Item Detail				Alternative: Peer CR Systems (2008 NTD) Forecast Year: 2008			
Cost Item	FY 08 Salary	Cost Drivers	Productivity Factors Var. #1	Var. #2	FTE's	Item Cost 2008\$	Dept. Cost 2008\$
CONTRACT OPERATOR							
General Manager's Office							
General Manager	\$145,000	Peak Cars (Salary)	\$14,500	\$130,500	1.0	\$145,000	
Quality Control Manager	\$90,000	Peak Cars (Salary)	\$9,000	\$81,000	1.0	\$90,000	
Administrative Assistant	\$35,000	Peak Cars (Salary)	\$3,500	\$31,500	1.0	\$35,000	
Fringe Benefits		Labor Costs	35.0%			\$94,500	
Travel, Training, Employee Expenses		% Dept. Salaries	7.5%			\$20,250	
Materials & Supplies (Staff)		Labor Costs	2.5%			\$6,750	
					Office Subtotal:	3.0	\$391,500
Safety & Training							
Director of Safety & Training	\$105,000	Peak Cars (Salary)	\$10,500	\$94,500	1.0	\$105,000	
Instructor	\$65,000	# Engineers	0.05		1.0	\$65,000	
Fringe Benefits		Labor Costs	35.0%			\$59,500	
Travel, Training, Employee Expenses		% Dept. Salaries	10.0%			\$17,000	
Materials & Supplies (Staff)		Labor Costs	2.5%			\$4,250	
					Office Subtotal:	2.0	\$250,750
Operations							
Director of Operations	\$120,000	Peak Cars (Salary)	\$12,000	\$108,000	1.0	\$120,000	
Administrative Assistant	\$35,000	Peak Cars (FTEs)	0.0179	0.75	1.0	\$35,000	
Locomotive Engineers	\$62,500	Train-Hours	800		25.0	\$1,562,500	
Trainmaster	\$60,000	Yards, Shifts	3.0		5.0	\$300,000	
Conductors	\$55,000	Train-Hours	800		25.0	\$1,375,000	
Bridge Tenders	\$50,000	Bridges, Shifts	5.0		5.0	\$250,000	
Manager of Train Operations	\$85,000	Peak Cars (Salary)	\$8,500	\$76,500	1.0	\$85,000	
Train Dispatchers	\$60,000	Yards, Shifts	5.0		5.0	\$300,000	
Fringe Benefits (+ OT)		Labor Costs	45.0%			\$1,812,375	
Travel, Training, Employee Expenses		% Dept. Salaries	2.5%			\$100,688	
Materials & Supplies (Staff)		Labor Costs	2.5%			\$100,688	
Diesel Fuel		Car Miles	\$2.20			\$6,747,695	
					Office Subtotal:	68.0	\$12,788,945
Equipment Maintenance							
Director of Equipment Maintenance	\$110,000	Peak Cars (Salary)	\$11,000	\$99,000	1.0	\$110,000	
Manager of Equipment Maintenance	\$85,000	Yards, Shifts	2.0		3.0	\$255,000	
Administrative Assistant	\$35,000	Peak Cars (FTEs)	0.0179	0.75	1.0	\$35,000	
Cleaning Supervisor	\$50,000	Peak Cars (Salary)	\$5,000	\$45,000	1.0	\$50,000	
Car Cleaners	\$35,000	Peak Cars	4.0		13.0	\$455,000	
Maintenance Supervisor	\$55,000	Peak Cars (Salary)	\$5,500	\$49,500	1.0	\$55,000	
Maintainers	\$45,000	Car-Miles	74,681		41.0	\$1,845,000	
Fringe Benefits (+ OT)		Labor Costs	45.0%			\$1,262,250	
Travel, Training, Employee Expenses		% Dept. Salaries	2.5%			\$70,125	
Materials & Supplies (Staff)		Labor Costs	5.0%			\$140,250	
Yard & Shop Utilities	\$724,827	Yard, Peak Cars	\$181,207	\$5,409		\$583,697	
Car Cleaning	\$275,918	Peak Cars	\$4,118.18			\$218,638	
Rolling Stock - Maintenance & Repairs	\$2,473,254	Car-Miles, Peak Cars	\$0.68	\$18,457		\$3,079,795	
					Office Subtotal:	61.0	\$8,159,755
Engineering / Maintenance of Way							
Chief Engineer	\$120,000	Peak Cars (Salary)	\$12,000	\$108,000	1.0	\$120,000	
Administrative Assistant	\$35,000	Peak Cars (FTEs)	0.0179	0.75	1.0	\$35,000	
Manager of Track	\$90,000	Peak Cars (Salary)	\$9,000	\$81,000	1.0	\$90,000	
Section Foreman	\$60,000	Route-Miles	0.019		4.0	\$240,000	
Track Maintainers	\$45,000	Route-Miles	0.038		8.0	\$360,000	
Machine Operator	\$50,000	Route-Miles	0.009		2.0	\$100,000	
Track Welder	\$50,000	Route-Miles	0.019		4.0	\$200,000	
Manager of Signals/Communications	\$85,000	Peak Cars (Salary)	\$8,500	\$76,500	1.0	\$85,000	
Signal Inspector	\$50,000	Route-Miles	0.009		1.0	\$50,000	
Signal Maintainers	\$50,000	Route-Miles	0.057		12.0	\$600,000	
Communications Maintainer	\$50,000	Route-Miles	0.009		1.0	\$50,000	
Manager of Structures	\$85,000	Peak Cars (Salary)	\$8,500	\$76,500	1.0	\$85,000	
Fringe Benefits (+ OT)		Labor Costs	45.0%			\$906,750	
Travel, Training, Employee Expenses		% Dept. Salaries	2.5%			\$50,375	
Materials & Supplies (Staff)		Labor Costs	5.0%			\$100,750	
Repairs & Maintenance - Yard & Rt-Miles	\$1,497,079	Yard, Route-Miles	\$299,416	\$3,710		\$1,261,783	
Yard Security	\$290,904	Yard	\$72,726			\$119,006	
					Office Subtotal:	37.0	\$4,453,664
Administration & Finance							
Director of Administration & Finance	\$105,000	Peak Cars (Salary)	\$10,500	\$94,500	1.0	\$105,000	
Information Technologies	\$60,000	Peak Cars (FTEs)	0.0179	0.75	1.0	\$60,000	
Human Resources	\$60,000	Peak Cars (FTEs)	0.0179	0.75	1.0	\$60,000	
Manager of Accounting & Finance	\$85,000	Peak Cars (Salary)	\$8,500	\$76,500	1.0	\$85,000	
Payroll & Billing	\$60,000	Peak Cars (Salary)	\$6,000	\$54,000	1.0	\$60,000	
Procurement	\$60,000	Peak Cars (Salary)	\$6,000	\$54,000	1.0	\$60,000	
Fringe Benefits		Labor Costs	35.0%			\$150,500	
Travel, Training, Employee Expenses		% Dept. Salaries	2.5%			\$10,750	
Materials & Supplies (Staff)		Labor Costs	2.5%			\$10,750	
Communications	\$160,504	Total Labor FTEs	\$1,000			\$177,000	
Computer Equipment/Software	\$155,730	Total Labor FTEs	\$1,000			\$177,000	
					Office Subtotal:	6.0	\$851,000
Management Fee							
		% of Contract Cost	10.00%	na		\$2,689,561	
					Office Subtotal:		\$2,689,561
Contract Operator Subtotal					177.0		\$29,585,175
Cost Summary							
Operating Agency Subtotal							\$10,012,974
Contract Operator Subtotal							\$29,585,175
Total Cost							\$39,598,149
Average Cost							
Cost per Train-Hour:							\$1,977.25
Cost per Car-Mile:							\$12.89
Cost per Passenger:							\$8.94

