AGENDA

Meeting Type:	WORKSHOP
Date:	12/08/1988

City of Charlotte, City Clerk's Office

Mayor and City Council
Workshop Agenda
December 8, 1988

5:00 - 6:00 p.m.	Cultural Arts; Performing Arts Center
6:00 - 6:30 p.m.	Transit Corridor Study Report

No dinner is scheduled; club sandwiches will be available.

PURPOSE OF WORKSHOP

During the FY89 budget preparation workshops, the question was raised concerning the City's policy of funding cultural agencies.

For the purposes of this report, we have focused on those organizations traditionally defined as cultural and arts organizations.

Afro-American Cultural Center
Arts and Science Council
Children's Theatre
Discovery Place
Dowd House
Hezekiah Alexander Homesite
Historic Properties
Historic Districts Commission
Mint Museum
Nature Museum
Performing Arts Center
Spirit Square

The purpose of this discussion is to ask for direction to prepare the budget. The requests will then be placed in the review process to be evaluated with other City services and projects within the overall objective to meet the operating budget benchmark and the capital budget policies.

CAPITAL POLICIES

The City's Capital Budget includes two policies related to Capital support for cultural facilities:

> The City will provide public assistance for cultural facilities, program expansions or rehabilitation on a 50/50 matching basis.
>
> The City will maintain the basic structural soundness of City-owned facilities leased by cultural organizations.

It should be noted that although routine building maintenance is normally an operational expense, if a project cost is significant, it may be charged to the capital budget Building Improvements Account or if a major cost be established as a separate project for matching funds.

AGENCY	PROJECT	FISCAL YEAR	CITY FUNDING FY84-93	SOURCE OF FUNDING
Afro-American Cultural Center	Renovation	FY84	$ 677,000	Community Development Funds
Children's Theatre	Expansion	FY85	93,000	General Revenue Sharing
Discovery Place	Expansion	FY85	350,000	General Revenue Sharing
	Expansion	FY91-92	9 million	Cultural Facility Bonds
Dowd House	See Note Below			
Hezekiah Alexander Homesite	See Note Below			
Mint Museum	Expansion	FY84	3.5 million	Cultural Facility Bonds
	Expanded Parking	FY88	150,000	Pay-As-You-Go
Nature Museum	See Note Below			
Performing Arts Center	New Building	FY88-90	15 million	Cultural Facility Bonds
Spirit Square	HVAC Modifications	FY84	45,000	General Revenue Sharing
	Sprinkler System	FY84	167,000	General Revenue Sharing
	Elevator	FY85	165,000	General Revenue Sharing
	Dome Replacement	FY86	111,000	General Revenue Sharing
	Parking Lot Acquisiton	FY87	96,000	General Revenue Sharing
	Renovation	FY87	2 7 million	Capital Facility Lease Purchase

Note: Capital requests which are not included in the 5-year plan are considered on an individual request basis. This would include unscheduled major repair or construction-type projects. These are funded via the Building Improvements Account.

Cultural Facilities
Retirement of Debt (Principal)
FY1989 - 2012

Fiscal Year	[1]Performing Arts	Mint Museum	[2]Discovery Place	Spirit Square	Total
1989	-	$ 95,904	$296,429	$ 335,384	$2,141,153
1990	$ 64,658	156,271	296,429	347,228	3,167,729
1991	351,232	156,271	314,903	362,456	3,488,005
1992	377,575	155,736	410,966	378,530	3,618,062
1993	405,893	155,200	514,235	397,988	3,760,684
1994	436,335	155,201	530,570	419,138	3,828,612
1995	469,060	177,678	548,131	441,134	4,254,645
1996	504,239	191,058	1,006,293	625,562	5,142,981
1997	542,057	277,756	1,176,587	584,454	6,674,453
1998	582,712	275,615	1,051,972	260,740	6,233,088
1999	626,415	284,178	636,140	100,000	5,834,982
2000	673,396	295,416	361,350		5,684,048
2001	723,901	274,010	388,451		5,424,749
2002	778,193	160,017	417,585		3,714,150
2003	836,558	153,595	448,904		3,702,762
2004	899,300	118,809	482,572		3,251,701
2005	966,747	109,176	518,765		3,203,733
2006	1,039,253		557,672		1,596,925
2007	1,117,197		599,498		1,716,695
2008	1,200,987		644,460		1,845,447
2009	1,291,061		692,794		1,983,855
2010	1,113,231		744,754		1,857,985
2011			722,137		722,137
2012			374,118		374,118

[1] Estimated level debt service payments - start repayment in FY 90

[2] Includes $9 million authorized in November, 1988, level debt service payments - start repayment in FY91

OPERATING POLICY

The City's Operating Budget includes a policy related to quality of life which is stated as:

> City government will provide services that promote leisure opportunities, cultural enrichment and beautification.
>
> The policy has supported budget funding of contributions to various cultural and service agencies which are traditionally provided City support.

The City funding of cultural program operating expenses occurs in one of three ways:

1) As a City department or division within a City department, the line-item budgets for these agencies are reviewed under normal budgetary procedures. All positions fall under City personnel policies and pay plans and all expenditures must go through normal City purchasing and finance regulations.

2) A contract is signed between the City and the agency and contribution is made toward operating expenses in the form of an annual payment to the agency.

3) Internal support from other City departments is granted to the agency generally in the form of landscaping and grounds maintenance assistance or utilities and routine building maintenance.

CURRENT OPERATING BUDGET

AGENCY	TYPE OF SUPPORT	CITY FY88 ACTUAL
Mint Museum	City Department. Operational support for: utilities, building maintenance, grounds maintenance, custodial support. Non-Program related telephone, postage, etc. Personnel expenses for 41 City positions.	$1,323,513
Discovery Place	City personnel support is required for: facility maintenance, inspection and administration of contracts with outside firms which include: mechanical service contracts and custodial support. The City pays utility costs and provides grounds maintenance.	322,369
Hezekiah Alexander	Division of Parks and Recreation Operational expenses: telephone, postage, utilities, building maintenance, grounds maintenance. Personnel expenses for 4 City positions.	159,873
Nature Museum	Lump sum support for operating expenses and program support. Some grounds maintenance is performed.	215,500
Historic Districts Commission	Division of Planning Department Operational support for: telephone, printing, office supplies, etc. Personnel expenses for one City position.	48,909
Arts and Science Council	Lump sum operational support for agency and its member organizations and affiliates.	494,340
Historic Properties	Operational support for: telephone, postage, printing, etc., and consultant fees: Director, recording consultant, survey historian, etc. Historic Landmarks Fund support (matching funds)	109,710
Dowd House	Limited payment of utilities and building maintenance. Contract with outside firm for grounds maintenance.	13,200
Afro-American Cultural Center	Contract with outside firm for grounds maintenance.	4,080
Children's Theatre	None	-0-

CURRENT OPERATING BUDGET (Continued)

AGENCY	TYPE OF SUPPORT	CITY FY88 ACTUAL
Performing Arts Center	None	-0-
Spirit Square	None	-0-
		$2,691,494
% of General Fund ($154,783,258)		1.73%

OPTIONS

I. Does Council wish to change the capital funding policies? If so, the following areas are identified as areas which you may want to consider. Council should add others as they are identified during discussion.

1. Protection of City's capital investment.
2. Should there be a limit on capital support.
3. Terminate ownership at end of lease by negotiating the sale of facility.
4. Coordination with community capital fund drives.
5. Limit support to capital with no commitment to operating expenses.
6. Dedicated revenue for funding of cultural agencies.
7.
8.
9.
10.

II. Does Council wish to change the operating funding policies. If so the following are identified as areas which you may want to consider. Council should add others as they are identified during discussions.

1. Percentage increase within the benchmark guidelines.
2. Fund only operating deficits.
3. Place limits on allocations (i.e. % of General Fund; (dollar per capita, cap all support).
4. Institute a funding requirement to reimburse the City with surplus revenues.
5. Provide only seed dollars for a limited time period.
6. Limit at current level.
7. Phase out operating support.
8. Provide new and/or dedicated revenue source.
9. Match % increase with private fund drives.
10. Dedicated revenue for funding of cultural agencies.
11.
12.
13.

III Does Council wish to discuss its role in cultural programs with the private sector? With other governmental units? If so,

1) Who in private sector/public sector?
2) What would be the objective of this discussion?
3) When should it occur?

CITY OF CHARLOTTE
SUPPORT OF CULTURAL PROGRAMS

CAPITAL SUPPORT

The City's Capital Budget includes two policies related to Capital support for cultural facilities:

1. The City will provide public assistance for cultural facility, capital program expansions or major construction projects on a 50/50 matching basis.

2. The City will maintain the basic structural soundness of City-owned facilities leased by cultural organizations.

It should be noted that although routine building maintenance is normally an operational expense, if a project cost is significant, it may be charged to the capital budget Building Improvements Account.

CHILDREN'S THEATRE
1017 East Morehead Street

The theatre is owned by the City and leased to the agency for $1/year. A one-year lease is in effect. A 5-year lease is presently being negotiated. Renewal of this lease is on the December 12th agenda.

There were no capital projects performed in FY88.

NATURE MUSEUM
1658 Sterling Road

The land and building are owned by the City. It was leased to the Nature Museum for a one-time payment of $1.

No capital projects were done in FY88.

DISCOVERY PLACE
302 North Tryon Street

The facility is owned by the City and leased to Discovery Place for $1/year. Lease expires in 1991. Renewal of the lease will include negotiations on the facility expansion.

No capital projects were performed in FY88.

The November 1988 Bond Referendum includes $9 million for expansion under the 50/50 match program.

AFRO-AMERICAN CULTURAL CENTER
401 North Myers Street

The City owns the facility and leases it to the Afro-American Cultural Center for $1/year. Lease expires in 1996 and has a 10-year renewal option.

There were no capital projects in FY88.

MINT MUSEUM
501 Hempstead Place

As a City Department, Capital projects are requested via the normal Capital Projects budget process. The City runs the facility - no lease required.

The City will provide a 50/50 match for new construction projects and facility maintenance as needed.

During FY88, $150,000 was dedicated to the parking lot construction.

SPIRIT SQUARE
403 North Tryon Street

Spirit Square is jointly owned by the City and County

The City does not have a lease.

The City supports capital improvements of Spirit Square under the 50/50 matching basis. In FY87, a total of $2.7 million was approved for renovation of the Spirit Square Arts Complex. Operating support is provided by the County.

PERFORMING ARTS CENTER

The City has committed $15 million to construct the Performing Arts Center in conjunction with State grants and private fundraising for an approximate total cost of $38 million.

OPERATING SUPPORT

The City funding of cultural program operating expenses occurs in one of three ways:

1. As a City department or a division within a City department, the line-item budgets for these agencies are reviewed under normal budgetary procedures. All positions fall under City personnel policies and pay plans and all expenditures must go through normal City purchasing and finance regulations.

2. A contract is signed between the City and the agency and contribution is made toward operating expenses in the form of an annual, one-time payment to the agency.

3. Internal support from other City departments is granted to the agency generally in the form of landscaping and grounds maintenance assistance or utilities and routine building maintenance.

As a general guideline, the percentage increase given to cultural agencies is limited to the same percentage increase as the City's operating budget. An exception has been granted to the Arts and Science Council, whereby the City increases its contribution by the percentage increase achieved by the annual Arts and Science Council fund drive.

In FY88, the City made direct operating contributions to cultural agencies of $2,312,565 and indirect support (in other department budgets) of $366,549 for a total of $2,679,114.

HISTORIC PROPERTIES

FY88 Budget: $131,710
City Support: $109,710 (83.2%)

City funding covers operating costs representing approximately 83% of the total budget. These costs include: consultant fees, postage, printing, utilities and telephone. Yearly budget requests are reviewed by line item. Payments are made to the agency based on invoices for reimbursement.

NATURE MUSUEM
1658 Sterling Road

FY88 Budget: $460,000
City Support: $215,000 (46.7%)

City funds are provided for facility and program support. Funding levels are determined by reviewing projected revenues and expenditures of the Nature Museum in relation to their funding request.

Funding is provided as a one-time payment.

Additionally, Parks and Recreation provided grounds maintenance equivalent to approximately $500 in FY88.

DISCOVERY PLACE
301 North Tryon Street

FY88 Budget: $2,540,000
City Support: Approximately $322,369 (12.6%)

The City pays for utility costs (gas, water, electric) and for facility upkeep (contract maintenance and inspections) via the Central Services budget. In FY88, this totalled approximately $322,369.

Additionally, Parks and Recreation provided grounds maintenance equivalent to approximately $4,200 in FY88.

The expansion of Discovery Place will be included in new lease negotiations in in two years.

DOWD HOUSE
2216 Monument Street

The House is owned by the City and leased for $1/year. The lease expires in September, 1989.

FY88 Budget: N/A
City Support: $6,000

As part of the lease agreement, the City will do miscellaneous upkeep and pay utility bills for a total operating cost not to exceed $6,000 per year. This cost is in the General Services Budget.

Additionally, Parks and Recreation administers and pays for a grounds maintenance contract with Landmasters costing $7,200 in FY88.

MINT MUSEUM
501 Hempstead Place

The facility is owned by the City.

FY88 Budget: $2,039,113
City Support: $1,310,613 (64.2%)

The City provides operational support via the operating budget for personnel, facility upkeep, and maintenance. Art collection, exhibit and program costs are the responsibility of the Board of Trustees, under the agreement with the City. Prior to FY75, the Mint Museum received non-departmental support from the City. In FY75, it was set up as a separate fund. In FY81, it was established as a City department. It has a working arrangement and the following budget conformation:

City support: structural support, maintenance, salaries, etc.
Trustee support: program costs, exhibitions, fund raising - related salaries, etc.

Additionally, Parks and Recreation provided grounds maintenance equivalent to approximately $12,900 in FY88.

HEZEKIAH ALEXANDER HOMESITE
3500 Shamrock Drive

The facility is leased by the City from the Methodist Home for $1/year until year 2050.

FY88 Budget:	$185,073
City Support:	$150,573 (81.3%)

City operational support is provided via the Parks and Recreation Department for personnel, maintenance, and operating costs. Collections, exhibits and program costs will be the responsibility of a newly formed board.

Additionally, Parks and Recreation performed grounds maintenance equivalent to approximately $9,300 in FY88.

ARTS AND SCIENCE COUNCIL

FY88 Budget:	$2,460,290 (Arts and Science Council budget only)
City Support:	$ 494,340 (20%)

City operating support is provided via contract and one-time payment based on matching the percentage increase of the Arts and Science Council annual fund drive. The total budgets of the twelve annually-funded members of the Arts & Science Council was approximately $12,573,000 in FY88. City funding is divided among support of the Arts & Science Council; the twelve annually-funded members; and approximately 35 affiliate members.

AFRO-AMERICAN CULTURAL CENTER
401 North Myers Street

The facility is owned by the City and leased to the Afro-American Cultural Center for $1/year.

FY88 Budget:	$187,400
City Support:	Grounds Maintenance (2.1%)

As City support, Parks and Recreation administers and pays for a grounds maintenance contract with Landmasters costing $4,080 in FY88.

FY88 COUNTY CULTURAL CONTRIBUTIONS
OPERATING ONLY

AGENCY	FISCAL YEAR FY88
WTVI (37% of Contribution)	$ 204,240
WTVI - Capital Reserve	76,000
Arts & Science	154,710
Science Museum	177,210
Spirit Square	742,500
Latta Place	22,270
Carolina Raptor Center	49,500
Spirit Square Renovation	300,000
Latta Place Barn & House Renovation	20,000
TOTAL OPERATING FUNDS	$1,746,430

FY89-93 COUNTY CAPITAL PLAN
CULTURAL FUNDING

AGENCY	5-YEAR PLAN
WTVI Tower and Transmitting Facility	$3,100,000

NOTES

PRELIMINARY

DRAFT

EXECUTIVE SUMMARY

CHARLOTTE TRANSIT CORRIDORS STUDY

Charlotte, North Carolina

December 2, 1988

Prepared For
Charlotte Department of Transportation

Prepared By
Barton-Aschman Associates, Inc.
Washington, D.C.

PRELIMINARY

EXECUTIVE SUMMARY
Charlotte Transit Corridors Study

As the Charlotte region passes the half-million mark in population, its transportation needs will require a stronger public transportation system to relieve an overloaded highway system and provide an alternative to the private auto. Several corridors in the region may offer the long-term potential for developing some form of guideway transit as part of a future regional transit system. The Charlotte Transit Corridors Study was undertaken to investigate the feasibility and need for capital-intensive transit improvements in these corridors through the year 2005. A part of the study also addressed low capital-intensive actions such as bus service expansion and traffic engineering improvements that can be implemented over the next five years to meet present needs and build toward longer-range service improvements.

The study methodology included an analysis of base year regional transit conditions and the estimation of passengers that might be expected to ride alternative transit systems in the year 2005. The base year for the analysis was 1985, since it also served as the basis for the development and calibration of the regional travel demand models by the City Department of Transportation. The projections of future person travel were derived from population, employment, and development projections reflected in the 2005 Generalized Land Use Plan. These travel projections were also used in the thoroughfare planning process recently completed by the City Department of Transportation.

Eight corridors plus the Central Area were included in the study: UNCC, Pineville, Southpark, Airport, Northwest, Davidson, Albemarle, and Matthews. All of these except Southpark are existing rail corridors. Alternative transit technologies were evaluated during the study, and the most

appropriate forms of guideway transit for application in Charlotte's corridors were determined to be exclusive busways and contemporary light rail transit (LRT) similar to that which has been implemented in recent years in such cities as Portland, Sacramento and San Diego. The study considered the possible development of exclusive busways in the following corridors: Southpark, Pineville (via I-77), Matthews (via Independence Boulevard), Airport (via Wilkinson Boulevard), and UNCC (via I-77 and I-85). LRT service was evaluated in all eight study corridors.

Regional Growth Projections

The 2005 Land Use Plan calls for a 42% increase in Mecklenburg County's population between 1980 and 2005, reaching a level of 573,000. The County is expected to continue its pattern of predominant growth to the south and east. However, the north and northeast sectors are expected to become significant growth areas. Population growth in the vicinity of each of the rail corridors will lag behind overall County growth (i.e., corridor growth of 10% to 30% versus 42% Countywide), continuing the historic pattern in the region of people tending not to live near railroads. Population densities will remain relatively low throughout the County (average in 2005 of 1.7 persons per acre) with the highest density being in the Central Area at 4.8 persons per acre.

Employment, the other key characteristic of land development that creates the need to travel, will grow by 73% between 1980 and 2005 to a level of 425,000 employees. Within Mecklenburg County, the Charlotte Central Area is the largest concentration of employment in the region, and as the largest single attractor of travel, is extremely important to the viability of the future regional transit system. The 2005 Plan calls for a 33% growth in Central Area employment over the 25-year period to a level of 54,000

employees by 2005. Much of the County's employment outside the Central Area is located within or near the study corridors, particularly in the Pineville, Airport, Northwest, Matthews, and UNCC corridors.

Transit Travel Estimates

Using these projections of County population and employment and the travel demand models developed by the City Department of Transportation, estimates of 2005 transit ridership were developed for three, basic system alternatives:

(1) a 2005 bus system reflecting an expansion of the present system to serve new growth areas and some enhancement of existing service levels.

(2) a 2005 busway and local bus system reflecting exclusive busways in the five corridors mentioned earlier, supported by local bus service.

(3) a 2005 LRT and local bus system reflecting LRT service in the seven rail corridors and in the Southpark Corridor, supported by local bus service.

The 2005 ridership forecasts for the two-hour AM peak period for these regional systems are compared with 1985 base year transit ridership (linked transit trips) in the following table:

SYSTEM	REGIONAL		CENTRAL AREA	
	2-HR AM Peak Transit Trips	% Of Person Trips	2-HR AM Peak Transit Trips	% Of Person Trip
1985 Bus System	4,710	1.24	2,450	8.09
2005 Bus System	7,120	1.24	3,100	7.02
2005 Busway/Bus	8,320	1.45	4,180	8.19
2005 LRT/Bus (Flat Fare)	16,730	2.91	9,450	18.49
2005 LRT/Bus (Mileage Fare)	14,710	2.56	8,190	16.03

The two forecasts of LRT/Bus system ridership reflect alternative LRT fare structures of (1) a $0.75 flat fare and (2) a $0.125 per mile fare with a $0.75 minimum fare. All bus estimates reflect a local service fare of $0.50 and an express fare of $0.75. All 2005 forecasts also assume an escalation of Central Area parking costs to reflect 2005 conditions (all costs expressed in 1988 dollars). The LRT forecasts are based on a 77-mile regional LRT system in the eight corridors described earlier. The busway alternative includes approximately 41 miles of exclusive busways.

These forecasts suggest that a 2005 transit system consisting of an expansion of the present bus system will produce a 51% absolute growth in transit ridership over 1985 levels, but no change in the share of total regional travel served by transit. The share of Central Area trips by transit will decline from just over eight percent to about seven percent. The combination of exclusive busways and expanded local service will produce

more transit usage (up 76% over 1985), but again, will not significantly increase transit's share of total regional travel. Because of their enhancement of Central Area transit service, busways will increase slightly transit's share of Central Area trips to 8.2%. The extensive LRT system will significantly increase regional transit ridership from 212% to 255% over 1985 levels, depending upon the assumed fare structure. Transit's share of regional travel would double to nearly three percent under the flat fare alternative. LRT's impact on Central Area travel is even more dramatic, increasing transit trips by nearly 300% and more than doubling transit's share of AM peak travel. On an average weekday basis, the alternative systems will achieve the following ridership levels:

- 1985 Bus 25,000
- 2005 Bus 37,900
- 2005 Busway/Bus 44,300
- 2005 LRT/Bus (Flat Fare) 89,000
- 2005 LRT/Bus (Mileage Fare) 78,300

To achieve the increases in transit ridership described above, each of the alternative systems would greatly expand the level of transit service provided. Vehicle miles of service provided under each alternative during the two-hour AM peak period are compared below:

Alternative	Local Bus VMT	Express Bus VMT	LRT VMT	Total VMT
1985 Bus	2,550	250	—	2,800
2005 Bus	4,080	1,510	—	5,590
2005 Busway/Bus	3,170	6,210	—	9,380
2005 LRT/Bus	4,070	1,170	2,250	7,490

These system data indicate a doubling of service by the expanded 2005 bus system over the 1985 system. The busway/local bus alternative would more than triple vehicle-miles of service, mostly in the form of express bus service on the busways. The LRT/bus alternatives would include 77% of the express bus service provided by the 2005 bus system, plus add over 2,200 vehicle miles of LRT service during the AM two-hour peak period.

These future systems will also require substantial expansion of the region's bus fleet. The 2005 bus system will require an expansion of 82 buses to the 1985 fleet at a cost of $13.9 million (not counting normal fleet replacement). The LRT/bus system will add 66 buses to the 1985 fleet at a cost of $11.2 million. The busway system will require 148 additional buses at a cost of $25.0 million.

The travel forecasts provided specific estimates of passenger boardings on each of the LRT corridors. These estimates are given for the two-hour AM peak period and expanded to weekday totals in the table below for the flat fare and mileage fare LRT alternatives.

Corridor	Flat Fare		Mileage Fare	
	2-hr AM Peak	Daily	2-hr AM Peak	Daily
Davidson	1,590	8,460	900	4,790
Pineville	1,760	9,360	1,610	8,570
UNCC	940	5,000	860	4,580
Albemarle	1,480	7,870	880	4,680
Matthews	2,380	12,660	1,970	10,480
Southpark	1,280	6,810	1,390	7,390
Airport	1,740	9,260	1,310	6,970
Northwest	1,380	7,340	1,570	8,350
Total LRT	12,550	66,760	10,490	55,810

Note: Passenger boardings represent unlinked trips and include transfers between lines. Ridership figures given in earlier tables are linked trips and do not include transfers.

The Matthews Corridor attracted the highest patronage and the UNCC Corridor produced the lowest ridership. The effect of the mileage fare structure under which the cost of the trip increases with trip length can be seen in reducing the patronage on those lines with a substantial number of long trips (i.e. Davidson, Pineville, Albemarle, and Matthews).

Similar information on estimated boardings is presented in the following table for the five busway corridors:

Corridor	2-hr AM Peak	Daily
Pineville	520	2,770
Southpark	1,340	7,130
Matthews	1,630	8,670
UNCC	1,020	5,420
Airport	450	2,390
Total Busway	4,960	26,380

The strongest busway corridor is the Matthews/Independence Boulevard corridor, which will attract about 70 to 80% as much patronage as the Matthews LRT line. The UNCC busway attracts slightly more boardings than the UNCC LRT line, probably because the busway in following the I-85 corridor better serves the residential growth to the north than does the rail line.

LRT Engineering, Operational, and Costs Issues

Most of the LRT mileage built in this country in recent years has used existing railroad rights-of-way. When using existing rights-of-way on which non-LRT rail service will be continued, two construction options exist:

1. Joint or integrated operation of LRT and railroad trains upon the existing trackage, or

2. Construction of new LRT trackage adjacent to the existing railroad trackage.

Obviously, the first option is most cost effective because it reduces the need for new construction. However, joint use of trackage by LRT vehicles and other rail service on mainline trackage is not feasible for a number of operational and liability reasons. In mainline rail corridors, construction of parallel facilities for LRT service is the only practical solution. However, on railroad branch or secondary lines with low levels of rail activity, joint use of trackage by LRT and railroad vehicles may be feasible. Even in such cases, it may be necessary to replace the existing trackage to provide the safety and ride quality desired for passenger service.

The Charlotte railroad network consists of both mainline and branch routes. Certain sections of the rail network, such as the Central Area section between College and Brevard Streets, could be common to most, if not all, of the LRT routes. Thus, the following description of the 77-mile LRT system is broken down by segments with the present rail operational characteristics of each segment given:

ROUTE SEGMENT	DESCRIPTION	OPERATIONAL CHARACTERISTIC
ALBEMARLE (10.1 miles)	Norfolk and Southern Rwy. From 30th St. to Wilgrove	SECONDARY
DOWNTOWN I (1.1 miles)	Norfolk and Southern Rwy. From 30th St. to Brookshir	MAINLINE (Classified as such because it will require the total reconstruction of a double track along Brevard St.)
DOWNTOWN II (1.8 miles)	Norfolk and Southern Rwy. From Brookshire Freeway to Park Ave.	SECONDARY (Unused trackage at this point in time)
PINEVILLE I (4.4 miles)	Norfolk and Southern Rwy. From Park Ave. to Griffith Junction	SECONDARY

PINEVILLE II (5.2 miles)	From Griffith Junction to Pineville	MAINLINE
AIRPORT (8.2 miles)	Norfolk and Southern Rwy. 2nd Street/Downtown to Lake Wylie	MAINLINE
UNCC (8.0 miles)	Norfolk and Southern Rwy. - 30th Street to UNCC and I-85	MAINLINE
MATTHEWS (10.5 miles)	CSX Transportation R.R. From N&S R.R. to Trade St. in Matthews	MAINLINE
NORTHWEST (7.6 miles)	CSX Transportation R.R. - (Former Piedmont & Northern Rwy.) From Airport line, vicinity So. Cedar St., to City limit.	SECONDARY
DAVIDSON (20.2 miles)	Norfolk and Southern Rwy. From 30th Street to Griffith St. in Davidson	SECONDARY

Those corridors classified as branch or secondary routes would be the easiest and most cost effective in terms of capital investment in which to provide LRT service. They are the Albemarle, Northwest, and Davidson lines, as well as segments Downtown II and Pineville I. The Downtown II segment would be the primary Central Area service alignment for all LRT routes, although the Airport and Northwest routes would enter the west side of the Central Area and connect to the Downtown II segment via east-west surface street operation.

Operational characteristics of the LRT service include 15-minute headways during peak periods and an average system operating speed of 34 miles per hour (excluding route layover time). This is a comparatively high average operating speed relative to most recent LRT systems. However, the Charlotte

routes reflect very little surface street operation mixed with other vehicular traffic, which is common in other systems. Moreover, given projected future development densities, the spacing between stations in this system tends to be greater than in most other LRT systems.

Capital cost estimates were prepared for the LRT corridors and are presented below by the rail sections described earlier:

Route	Description	Total Capital Cost ($ millions)
Albemarle	30th St. to Wilgrove	$35.09
Downtown I	30th St. to Brookshire	18.85
Downtown II	Brookshire to Park Ave.	8.76
Pineville I	Park Ave. to Griffith Jct.	16.78
Pineville II	Griffith Jct to Pineville	23.71
Airport	2nd St. to Lake Wylie	46.16
UNCC	30th St. to UNCC & I-85	34.00
Matthews	N&SRR to Matthews	51.99
Northwest	Airport Line/2nd St. to City Limits	30.49
Davidson	30th St. to Davidson	80.18
Subtotal Routes		($346.01)
Rolling Stock	50 LRT Vehicles	85.20
Yard/Shop	Lump Sum Provision	35.50
GRAND TOTAL		($466.71)

These costs do not include any additional right-of-way costs or compensation for use of existing rail rights-of-way. They also do not include land and construction for parking facilities at stations. Station facilities are assumed to include modest station shelters with track-level platforms (i.e. no raised platforms). Costs do include a 22% factor for owner's costs such as insurance, general engineering and construction management services, risk management and legal services, and project administration. They also include a 20% factor for contingencies and other miscellaneous capital costs.

In considering the costs for any corridor(s), care should be taken to include the two Downtown sections, which are necessary to access the Central Area.

Busway Engineering and Cost Issues

The construction of busways within existing freeway facilities (I-77 and I-85) poses major engineering and cost problems. Superimposing a busway onto the freeway loop around the Central Area would require major reconstruction of the existing freeways or construction on a new alignment to provide unimpeded access to the Central Area. The difficulty of such action is reflected by the Independence Boulevard project which terminated the high occupancy vehicle (HOV) lanes before reaching the freeway loop and merged HOVs with surface street traffic to enter the Central Area. Because of the obvious prohibitive cost of such action, a busway on the Central Area freeway loop was not studied further.

The busway sections included in the 2005 Busway system alternative are described in the following table:

Route	Description
MATTHEWS (9.7 miles)	Belk/Brookshire Freeway interchange to new S.R. 51 at Matthews via Independence Boulevard
AIRPORT (6.3 miles)	I-77 Freeway interchange to Sam Wilson Road via Wilkinson Boulevard
PINEVILLE (8.5 miles)	I-77/Independence Boulevard interchange to Westinghouse Boulevard via I-77
UNCC (9.3 miles)	I-77/Brookshire Freeway interchange to Mallard Creek Church Road via I-77 and I-85)

The Busway system also included a route in the Southpark Corridor, but it was subsequently discarded because of major adverse environmental and community impacts.

There are major problems in retrofitting busways in all of the corridors described above, as well as on the Central Area freeway loop. Busway lanes could be added in the wide median on I-77 for the Pineville Route for about $17 to $20 million, assuming I-77 remains at four traffic lanes. Costs for a busway would increase if I-77 is widened to six lanes for general traffic because of the need to relocate median piers to accommodate both the busway and two new traffic lanes.

Extension of the Independence Boulevard HOV lanes from where they are presently planned to end at Idlewild Road to new N.C. 51 at Matthews would cost in the vicinity of $20 to $30 million for construction (assuming adequate right-of-way is generally available in this section).

The UNCC/I-85 busway has major design problems resulting from a lack of space for a busway on I-85 between I-77 and US 29 and similar constrained median space on the I-77 segment between the Central Area and I-85. Provision of exclusive bus lanes through the I-77/I-85 interchange would be extremely difficult and costly. The costs of reconstruction and right-of-way acquisition were considered prohibitive for the benefits gained and the concept of an exclusive busway was not studied further for this corridor.

The Airport route along Wilkinson Boulevard would require massive reconstruction of that street, which may not be warranted given the extensive available capacity on Wilkinson. Buses are already able to operate at reasonable speeds on Wilkinson in mixed traffic. The incremental improvement in level of transit service in going to an exclusive busway does not warrant the prohibitive cost, particularly considering the low volume of projected ridership.

Environmental Issues

An environmental review of all corridors was made to identify critical issues and "fatal flaws". The only corridor with serious environmental issues was the Southpark Corridor in which the only conceivable alignment for guideway transit would be along a creek and through a flood plain. Even more significantly, it passes through quiet residential neighborhoods, an existing park as well as a potential greenway park, and may encroach upon an historic district. This corridor was included in system ridership forecasts, but was not subjected to engineering study or costing because of the obvious, prohibitive environmental impacts. A special study of short-term transit service improvements, including traffic engineering actions to facilitate bus operations, was made in the Southpark Corridor in lieu of a capital-intensive solution.

Other potentially sensitive corridor sections include the northern end of the UNCC LRT line, where a rail alignment would have to be located carefully to minimize adverse impacts on the UNCC campus and developed portions of the Research Park and University properties.

The project's environmental report identifies other specific locations where special study or design treatment could be required, but none appear to be "fatal flaws" that would bar LRT or busway construction.

Conclusions

1. The ridership projections reflect the "highest likely estimates" for each line (given the land use forecasts that support the estimates) because an entire LRT system has been assumed. If LRT service was implemented in only one or two corridors, ridership on those routes would be lower than the estimates given in this report. Further tests

to determine this impact on ridership are currently being conducted by the City Department of Transportation.

2. The projections of future population and employment contained in the 2005 Land Use Plan do not support the concept of guideway transit in rail corridors. It does not attempt to direct high-density development into corridors that can more readily be served by rail transit.

3. No rail corridor stands out as an exceptionally strong candidate for LRT service, but some (such as the Matthews line) will have 2005 patronage levels that approach or equal existing LRT lines in such cities as Sacramento and San Jose.

4. If LRT or any form of guideway transit is pursued in the Charlotte region, the reshaping of development plans and policies to support corridor development and a strong Central Area must be an integral part of such an effort.

5. The most promising future LRT corridor may not be the corridor with the highest ridership from this study, but rather, the one with the greatest potential for new, intensive land development through revised development plans and policies.

6. Specific LRT corridor planning for Charlotte may have difficulty in securing Federal funding support, because the region has no corridor that meets the Federal threshold of 15,000 daily <u>existing</u> transit trips for their further participation in guideway planning and design.

7. LRT ridership is snesitive to parking costs in the Central Area. The City must evaluate the extent to which high parking costs and a constrained parking supply to support LRT usage may impede the continued economic growth of the Central Area in competition with suburban centers.

PRELIMINARY

8. The rail corridors in which LRT service can most readily and cost effectively be developed are the railroad branch line corridors (i.e., Albemarle, Davidson, and the Northwest). Of this group, the Northwest Corridor exhibits the highest ridership and ranked third among all eight corridors.

NOTES