



State of Good Repair Assessment Dallas Area Rapid Transit

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FTA Roundtable – Chicago IL
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1,714 vehicles



232 track miles ROW



63.5M sf facilities



84 miles HOV lanes



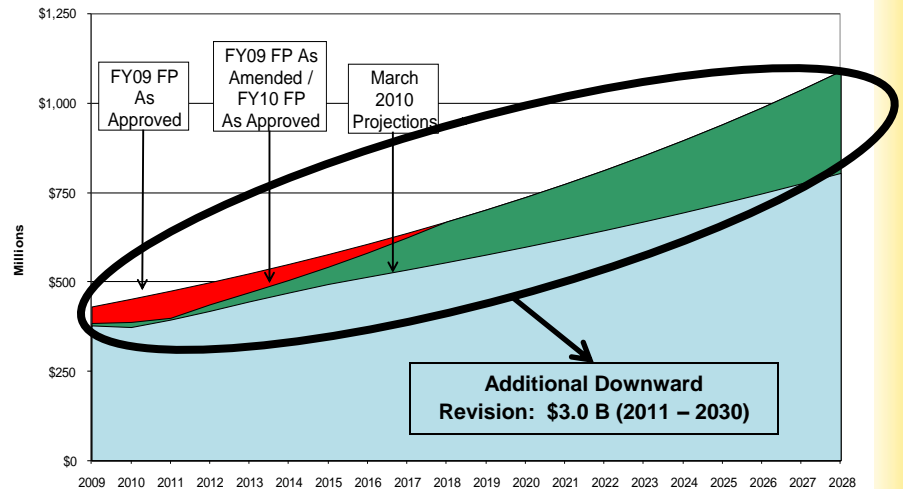
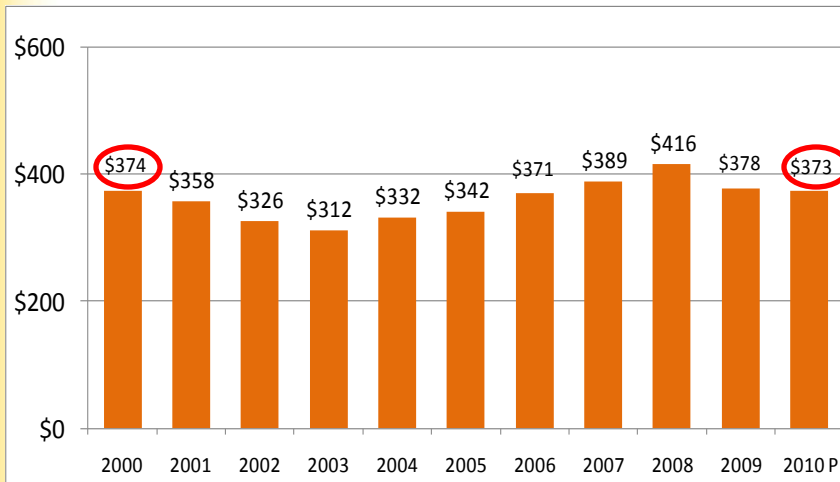
Policy Guidance

Board Financial Planning Parameters

- 20yr Financial Plan – Operating/Expansion/Asset Replacement (Revenues & Expenses)
- Reserve funding for asset maintenance & replacement
- Reserve levels based on asset condition assessment
- Asset condition assessment done every 5 years
- Operating cost escalation capped at 90% of inflation – excluding new services & fuels
- Limits administrative cost ratio increases
- Future capital programs escalate at no less than CPI



Lost Decade (2000 – 2010)



- 10 years of flat sales tax receipts and lower long-term growth projections...

- ...result in:
 - Sales tax revenues down \$3.0 B
 - Total sources down \$8.7 B
 - Capital spending down \$6.4 B
 - Operating spending down \$0.6 B
 - Debt service costs down \$1.6 B



Decade of Accomplishments

- Despite decade of zero sales taxes growth, DART has:
 - More than doubled Light Rail System /20 miles to 45 miles
 - Set up to double again in the next few years
 - More than tripled the length of commuter rail service
 - Quadrupled the number of HOV lane miles
 - Provided nearly 700,000,000 fixed route and over 1,100,000,000 total system trips

Asset Condition Assessment

- Goals
 - Obtain high level assessment of asset inventory
 - Results comparative to previous assessment
 - Ensure rate of physical degradation is consistent with plan
 - Validate maintenance & financial plans aligned with results
 - Adjust maintenance & financial plan where necessary

Asset Condition Assessment

- Approach
 - Inspection performed by in-house team of 8
 - Team trained on rating and documentation systems to provide continuity
 - Grouped assets into 8 categories
 - Rolling stock (buses, rail cars, light duty)
 - Operating Facilities
 - Passenger Facilities
 - Rail Wayside Systems (track, electrification, signals)
 - Communications
 - Paratransit
 - Commuter Rail
 - HOV

Asset Condition Assessment

- Approach
 - Unique categories identified
 - Information Technologies Network
 - Bridges & Tunnels
 - Interviewed asset owners to validate criteria, key issues & asset maintenance status
 - Sampling size ranged from 20% - 100% of assets by type
 - Additional administrative staff to compile data
 - 15 – 3” Binders
 - 512 – Inspection Sheets
 - 3,547 - Photographs

Asset Condition Assessment

Sampling Sizes

| | Total Assets | Sampled | % of Total |
|-------------|--------------|---------|------------|
| Facilities | 1,018 | 148 | 15% |
| Vehicles | 1,714 | 341 | 20% |
| HOV & Other | 19 | 19 | 100% |
| ROW Systems | 4 | 4 | 100% |

Asset Condition Assessment

Rating System

| Rating | Description |
|--------|---|
| 5 | In basically like-new condition, any difference being minor cosmetic damage or deterioration. |
| 4 | In typically good working order and requiring only routine maintenance. May have major cosmetic damage or deterioration or may have a minor defect indicative of possible fleet-wide issue. |
| 3 | Has non-critical defect needing attention or the asset is nearing the end of life requiring overhaul or replacement. |
| 2 | Has critical or safety related defect. Not suited for revenue service before repair. |
| 1 | Non-functional requiring major repair, structural repair, or replacement. |

Examples

Clearly #5



Clearly #1



Form Examples

FY2008 Office Asset Assessment Form

Facility: DART Headquarters

Address: 1401 Pacific Avenue Date: September 2008

| | | | | | |
|---|-------------------------|-----|-----|------|-----|
| Description: | Building Exterior Walls | | | | |
| Location: | Dock Area – North Side | | | | |
| Condition: | 1__ | 2__ | 3__ | 4_X_ | 5__ |
| Comments: | | | | | |
| A small amount of damage is located on exterior above a dock door. Overall exterior walls are in fair to good condition. | | | | | |

| | | | | | |
|---|--------------------------|-----|-----|------|-----|
| Description: | Exterior Building Façade | | | | |
| Location: | Building Exterior | | | | |
| Condition: | 1__ | 2__ | 3__ | 4_X_ | 5__ |
| Comments: | | | | | |
| The exterior building façade appears to be in good condition. | | | | | |

| | | | | | |
|---|-----------------------------------|-----|-----|-----|-----|
| Description: | Expansion Joints | | | | |
| Location: | Dock–North Side Exterior of Bldg. | | | | |
| Condition: | 1_X_ | 2__ | 3__ | 4__ | 5__ |
| Comments: | | | | | |
| Expansion Joints need to be repaired due to excessive wear. | | | | | |

| | | | | | |
|--|-----------------------------------|-----|------|-----|-----|
| Description: | Drain Grates | | | | |
| Location: | Dock-North Side Exterior of Bldg. | | | | |
| Condition: | 1__ | 2__ | 3_X_ | 4__ | 5__ |
| Comments: | | | | | |
| The drain grates need to be secured with anchors or screws to prevent theft. | | | | | |

FY2008 Office Asset Assessment Form

Facility: DART Headquarters

Address: 1401 Pacific Avenue Date: September 2008

| Overall Condition Rating of Facility | | | | |
|---|-----|-----|------|-----|
| 1__ | 2__ | 3__ | 4_X_ | 5__ |
| Comments: | | | | |
| This facility does have items which require attention due to age, availability of components, or both which need to be addressed. | | | | |

Condition 5: In Basically like new condition, with minor cosmetic damage or deterioration
Condition 4: In typically good working order requiring only routine maintenance
Condition 3: Has non-critical defect needing attention or is nearing end of life, requiring overhaul or replacement
Condition 2: Critical or safety related defect needing attention, requiring immediate repair
Condition 1: Non-functional, requiring major repair or replacement



Form Examples

LRV Number: 194
 Year: 1998
 LTD Mileage: 480231

Inspection Item

1.) Exterior Condition
 comments:

DART LRV Inspections
 Inspection Date: 6-23-08
 Fleet #: 51
 Manufacturer: Kenkiskerys

Physical Condition

1 2 3 4 5

2.) Interior Condition
 comments:

1 2 3 4 5

3.) Door System Condition
 comments:

1 2 3 4 5

4.) Condition of Trucks
 comments:

1 2 3 4 5

5.) HVAC System
 comments:

1 2 3 4 5

6.) Propulsion System
 comments:

1 2 3 4 5

7.) Friction Brake System Condition
 comments:

1 2 3 4 5

8.) Low Voltage Power System Condition
 comments:

1 2 3 4 5

9.) Coupler/Draft Gear Condition
 comments:

1 2 3 4 5

10.) Underfloor Control Boxes Condition
 comments:

1 2 3 4 5

11.) Cab Condition
 comments:

1 2 3 4 5

12.) Overall rating

If rated @ a 1 or 2, give reason for rating below
 1 2 3 4 5

NRV Number: 3529
 Year: 1997
 NRV Mileage: 48297

Inspection Item

1.) Interior Condition
 comments:

DART NRV Inspections
 Inspection Date: 8-20-2008
 Manufacturer: International

Physical Condition

1 2 3 4 5

2.) Exterior Condition
 comments:

1 2 3 4 5

3.) Engine Compartment Condition
 comments:

1 2 3 4 5

4.) Chassis/Understructure Condition
 comments:

1 2 3 4 5

5.) Overall rating

If rated @ a 1 or 2, give reason for rating below
 1 2 3 4 5

Condition 5: In Basically like new condition, with minor cosmetic damage or deterioration
 Condition 4: In typically good working order requiring only routine maintenance
 Condition 3: Has non-critical defect needing attention or is nearing end of life, requiring overhaul or replacement
 Condition 2: Critical or safety related defect, not suited for revenue service before repair
 Condition 1: Non-functional, requiring major repair or replacement

Inspected By:

M. J. E. 54103 Date: 8-20-2008



Statistical Analysis

FY2008 Condition Assessment Bus Fleets

| ACTIVE FLEET | | | | | | |
|---------------------------|------|----------------------|-----------|------------|------------|--------------|
| FLEET # | YEAR | MANUFACTURER | BUS # | 2008 | Number | Selected |
| 23 | 1998 | NOVA Transit 40' | 4200-4252 | 51 | 0 | 0% |
| 24 | 1998 | NOVA Transit 40' | 4300-4349 | 48 | 0 | 0% |
| 26 | 1998 | NOVA Transit 40' | 4400-4454 | 55 | 0 | 0% |
| 27 | 1998 | NOVA Transit 40' | 4500-4589 | 89 | 0 | 0% |
| 28 | 1999 | NOVA Transit 40' | 4600-4742 | 143 | 10 | 7.0% |
| 31 | 2000 | NOVA Transit 40' | 4800-4909 | 110 | 10 | 9.1% |
| 30 | 2000 | Champion<30' (7 yr.) | 5200-5259 | 8 | 2 | 25.0% |
| 34 | 2001 | Champion<30' (7 yr.) | 5400-5430 | 8 | 2 | 25.0% |
| 32 | 2002 | NOVA Transit 40' | 5500-5543 | 44 | 31 | 70.5% |
| 33 | 2002 | NOVA Transit 40' | 5600-5644 | 45 | 30 | 66.7% |
| 35 | 2004 | NABI Suburban 40' | 5700-5779 | 80 | 45 | 56.3% |
| ACTIVE FLEET TOTAL | | | | 681 | 136 | 20.0% |

| RESERVE FLEET | | | | | | |
|----------------------------|------|----------------------|-----------|-----------|-----------|------------|
| FLEET # | YEAR | MANUFACTURER | BUS # | 2008 | Number | Selected |
| 30 | 2000 | Champion<30' (7 yr.) | 5200-5259 | 37 | 9 | 24.3% |
| 34 | 2001 | Champion<30' (7 yr.) | 5400-5430 | 23 | 9 | 39.1% |
| RESERVE FLEET TOTAL | | | | 60 | 12 | 20% |

| | | | | | | |
|--------------------|--|--|--|------------|------------|--------------|
| FLEET TOTAL | | | | 741 | 148 | 20.0% |
|--------------------|--|--|--|------------|------------|--------------|



2008 CONDITION ASSESSMENT SUMMARY BUSES

Inspections Completed: 147

3.4 Summary Rating (for all that were inspected)**

(Refer to the individual inspection report for detail information)

Updated on: 6/26/08 1:39 PM

| Sample ID | Bus No. | Year | Bus Mileage | Fleet No. | Manufacturer | Overall Bus Rating ** | Comments |
|-----------|---------|------|-------------|-----------|--------------|-----------------------|------------------------|
| 1 | 4648 | 1999 | 443,057 | 28 | NOVA | 3 | Has cracked "A" pillar |
| 2 | 4651 | 1999 | 439,931 | 28 | NOVA | 3 | Has cracked "A" pillar |
| 3 | 4655 | 1999 | 439,265 | 28 | NOVA | 3 | Has cracked "A" pillar |
| 4 | 4687 | 1999 | 438,574 | 28 | NOVA | 3 | Has cracked "A" pillar |
| 5 | 4717 | 1999 | 420,421 | 28 | NOVA | 3 | Has cracked "A" pillar |
| 6 | 4718 | 1999 | 400,424 | 28 | NOVA | 4 | |
| 7 | 4722 | 1999 | 430,761 | 28 | NOVA | 3 | Has cracked "A" pillar |
| 8 | 4724 | 1999 | 415,529 | 28 | NOVA | 3 | Has cracked "A" pillar |
| 9 | 4727 | 1999 | 410,282 | 28 | NOVA | 3 | Has cracked "A" pillar |
| 10 | 4731 | 1999 | 406,891 | 28 | NOVA | 3 | Has cracked "A" pillar |
| 11 | 4848 | 2000 | 409,643 | 31 | NOVA | 3 | Has cracked "A" pillar |
| 12 | 4851 | 2000 | 401,533 | 31 | NOVA | 3 | Has cracked "A" pillar |
| 13 | 4864 | 2000 | 395,351 | 31 | NOVA | 3 | Has cracked "A" pillar |
| 14 | 4868 | 2000 | 398,276 | 31 | NOVA | 3 | Has cracked "A" pillar |
| 15 | 4871 | 2000 | 386,242 | 31 | NOVA | 3 | Has cracked "A" pillar |
| 16 | 4874 | 2000 | 407,788 | 31 | NOVA | 4 | |
| 17 | 4875 | 2000 | 395,694 | 31 | NOVA | 3 | Has cracked "A" pillar |
| 18 | 4876 | 2000 | 410,002 | 31 | NOVA | 3 | Has cracked "A" pillar |
| 19 | 4883 | 2000 | 389,471 | 31 | NOVA | 4 | |
| 20 | 4893 | 2000 | 371,123 | 31 | NOVA | 3 | Has cracked "A" pillar |
| 21 | 5204 | 2000 | 49,742 | 30 | Champion | 3 | |
| 22 | 5207 | 2000 | 76,992 | 30 | Champion | 3 | |
| 23 | 5208 | 2000 | 74,015 | 30 | Champion | 4 | |
| 24 | 5209 | 2000 | 68,229 | 30 | Champion | 3 | |
| 25 | 5212 | 2000 | 80,425 | 30 | Champion | 3 | |
| 26 | 5218 | 2000 | 98,145 | 30 | Champion | 3 | |
| 27 | 5219 | 2000 | 92,362 | 30 | Champion | 3 | |
| 28 | 5223 | 2000 | 76,725 | 30 | Champion | 3 | |
| 29 | 5254 | 2000 | 87,208 | 30 | Champion | 3 | |
| 30 | 5258 | 2000 | 87,208 | 30 | Champion | 3 | |
| 31 | 5403 | 2001 | 159,523 | 34 | Champion | 4 | |
| 32 | 5404 | 2001 | 203,623 | 34 | Champion | 3 | |

Bus Assessment Summary.xls
Buses

Page 1 of 4

Assessment Quantities 06-2008
Bus Fleets



Assessment Conclusions

Overall

- Assets are generally in good to excellent condition
- Asset owners understand conditions of assets
- Long & short term maintenance programs appear effective
- Financial Plan reserves appear adequate to support assets to planned end-of-life

Assessment Conclusions

Exceptions

- Obsolescence of older light rail propulsion systems
- Bus fleet retirement delay & impact on overhaul program
- Administrative building escalators & chilled water system
- Bus washer effluent runoff at two facilities
- Roof condition at two facilities

Results

- Projected 29% reduction in funds over 20 yrs
- Major plan amendments

| Description | FY10 - 20 Year Total | FY11 - 20 Year Total |
|----------------------------------|----------------------|----------------------|
| Sources of Funds | \$27,245,400,000 | \$19,440,700,000 |
| Operating Expenses | (\$11,090,100,000) | (\$10,831,500,000) |
| Capital & Non-Operating Expenses | (\$11,431,300,000) | *(\$ 4,178,800,000) |
| Debt Service Expenses | (\$5,609,700,000) | (\$ 4,407,100,000) |
| Net Available Cash | \$335,100,000 | \$ 205,000,000 |
| | | |

* ~\$2.452B (58%) reserved for SGR activities



Lessons Learned

- Commit to the assessment on regular interval
- Use consistent process & scoring system
- Document method of data capture, storage & analysis
- Train assessment evaluators
- Don't get mired in numbers. Step back and consider assets from an overall sub-group perspective.
- Analyze the data to determine trends
- Use the data to make informed financial plan decisions



Lessons Learned

- Choose asset evaluation pool carefully
 - Utilize a higher level approach- the goal is to determine state of good repair and to help forecast capital requirements.
 - Resist urge to start with financial capital asset list- this presents an unmanageable population of assets for assessment.
 - Select assets and asset classes that can impact safety or service or have a significant impact on operating or capital expense.
 - Group assets into classes that have a reasonable similarity (i.e. vehicles, facilities, structures, etc.) and utilize evaluators knowledgeable about each class.
 - For asset classes with large populations, select a statistically significant pool of assets in each class for asset assessment.

