

Trans-AM

Customizable, Open-Source Software for Transit Asset Management

presented to

TRB Asset Management Conference

presented by

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Transportation leadership you can trust.

CAMBRIDGE
SYSTEMATICS

Outline

- Project History
- Current PROGGRES System
- Future Trans-AM System

Project History

- Virginia Department of Rail and Public Transportation (DRPT) identified a need to manage grants to transit agencies taking into account short- and long-term capital needs forecasts
- Cambridge Systematics developed the Program Guidance and Grant Evaluation System (PROGGRES)
- Virginia DRPT and CS applied for an FTA grant to update and extend the system (now called Trans AM)
- PennDOT Bureau of Public Transportation joined the team with similar needs to Virginia DRPT, and some additional requirements

Project History

DRPT's Goals for an Asset Management System

- A quick, equitable and systematic method of assessing the applications for our limited grant resources
- A realistic method of calculating capital needs over a 20 year planning horizon
- A method for scoring applications based on several criteria, such as public benefit model, compliance with planning requirements, etc.



Capital Needs (\$ in thousands)

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Fiscal Year:

Grantee Filter:

District:

Rolling Stock Approach:

Grantees:

[Show Spare Ratio Adjustment](#)

Activities:

Click cell to view assets behind needs

FTA Code *	Activity Name		<= 2008 Backlog	2009 Backlog	2010 Backlog	2011 Backlog	2012	2013	2014	2015	2016	2017	2018	2019	20
11.12.XX	Bus, Rolling Stock	# of Units	\$113,546 1219	\$34,752 362	\$61,445 442	\$41,539 297	\$69,266 549	\$84,264 694	\$92,658 710	\$100,747 756	\$85,859 765	\$97,423 918	\$102,353 1088	\$111,181 880	\$11
12.12.XX	Rail, Rolling Stock	# of Units	\$80,510 31							\$3,235 1	\$6,599 2	\$26,923 8	\$6,865 2	\$7,003 2	
1X.3X.XX	Station Stops/Terminals (All)	# of Units													
1X.4X.XX	Support Facilities & Equipment	# of Units	\$15,025 2		\$80	\$159	\$298 1								
11.22.01	Busway	# of Units													
12.52.01	Traction Power	# of Units													
1X.62.01	Control/Signal System	# of Units													
11.32.09	Route Signing	# of Units				\$144 589	\$147 589	\$150 589	\$153 589	\$156 589	\$159 589	\$163 589	\$166 589	\$169 589	
11.32.10	Passenger Shelters	# of Units				\$568 101	\$579 101	\$590 101	\$602 101	\$614 101	\$627 101	\$639 101	\$652 101	\$665 101	
1X.XX.XX	Other Capital Needs	# of Units				\$7,169 594	\$7,313 594	\$7,459 594	\$7,608 594	\$7,760 594	\$7,915 594	\$8,074 594	\$8,235 594	\$8,400 594	\$
	Total Capital Needs	# of Units	\$209,081 1252	\$34,752 362	\$61,524 442	\$49,579 1581	\$77,602 1834	\$92,464 1978	\$101,021 1994	\$112,512 2041	\$101,159 2051	\$133,221 2210	\$118,272 2374	\$127,418 2166	\$12



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Capital Needs (\$ in thousands)

Fiscal Year: 2012 - Current

Grantee Filter: No Additional Filters

District: All Districts

Rolling Stock Approach: ESLMST

Grantees: All Grantees

Show Spare Ratio Adjustment

Activities: Bus, Rolling Stock

Click cell to view assets behind needs

FTA Code	Activity Name		<= 2008 Backlog	2009 Backlog	2010 Backlog	2011 Backlog	2012	2013	2014	2015	2016	2017	2018	2019	2020
11.12.01	Bus STD 40 FT	# of Units	\$33,427 90	\$5,540 15	\$13,684 37	\$16,249 44	\$20,738 55	\$30,759 80	\$29,785 76	\$27,982 70	\$22,577 55	\$21,539 51	\$19,091 44	\$31,747 73	\$33,427 90
11.12.02	Bus STD 35 FT	# of Units	\$9,827 30	\$9,126 20	\$15,430 48	\$10,750 33	\$11,605 35	\$11,482 32	\$18,503 47	\$13,830 28	\$14,177 28	\$12,058 23	\$16,261 28	\$20,217 40	\$20,217 40
11.12.03	Bus 30 FT	# of Units	\$19,541 66	\$8,547 27	\$10,659 36	\$6,218 21	\$19,630 65	\$18,482 60	\$20,423 65	\$21,152 66	\$21,575 66	\$26,674 80	\$22,447 66	\$26,148 73	\$31,747 90
11.12.04	Bus < 30 FT	# of Units	\$2,264 33	\$1,248 18	\$2,072 20	\$2,304 21	\$4,182 38	\$4,796 50	\$6,250 63	\$7,226 61	\$4,494 51	\$8,026 68	\$6,529 59	\$5,716 58	\$6,529 59
11.12.06	Bus Articulated	# of Units						\$714 1				\$773 1			
11.12.15	Vans	# of Units	\$34,667 841	\$8,826 233	\$8,981 249	\$4,581 130	\$11,341 298	\$16,536 423	\$15,887 402	\$19,128 481	\$20,625 492	\$24,274 574	\$32,182 721	\$24,267 548	\$22,577 55
11.12.16	Sedan / Station Wagon	# of Units	\$4,728 158	\$1,466 49	\$1,526 51	\$1,436 48	\$1,770 58	\$1,494 48	\$1,810 57	\$1,587 49	\$2,412 73	\$4,078 121	\$5,844 170	\$3,086 88	\$2,412 73
11.12.33	Ferry Boats	# of Units	\$9,092 1		\$9,092 1					\$9,842 1					
	Total Capital Needs	# of Units	\$113,546 1219	\$34,752 362	\$61,445 442	\$41,539 297	\$69,266 549	\$84,264 694	\$92,658 710	\$100,747 756	\$85,859 765	\$97,423 918	\$102,353 1088	\$111,181 880	\$116,000 1000

Capital Needs (\$ in thousands)

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Fiscal Year: **2012 - Current**

Grantee Filter: **No Additional Filters**

District: **Richmond**

Rolling Stock Approach: **ESLMST**

Grantees: **All Richmond Grantees**

[Show Spare Ratio Adjustment](#)

Activities: **Bus, Rolling Stock**

Click cell to view assets behind needs

FTA Code	Activity Name		<= 2008 Backlog	2009 Backlog	2010 Backlog	2011 Backlog	2012	2013	2014	2015	2016	2017				
11.12.01	Bus STD 40 FT	# of Units			\$369 1	\$2,216 6	\$4,144 11	\$16,521 43	\$9,014 23	\$10,393 26	\$2,854 7	\$1,666 4				
11.12.02	Bus STD 35 FT	# of Units	\$1,539 5	\$2,154 7	\$5,847 19	\$1,847 6	\$942 3		\$327 1	\$666 2						
11.12.03	Bus 30 FT	# of Units	\$296 1		\$296 1		\$302 1	\$308 1	\$314 1	\$320 1	\$981 3	\$1,666 5				
11.12.04	Bus < 30 FT	# of Units	\$654 9	\$235 3		\$147 2	\$330 4	\$366 5	\$562 7	\$390 5	\$679 9	\$914 12	\$910 11	\$969 11		
11.12.06	Bus Articulated	# of Units						\$714 1				\$773 1				
11.12.15	Vans	# of Units	\$5,573 124	\$2,240 51	\$2,384 55	\$1,054 26	\$2,901 67	\$4,610 100	\$3,797 84	\$4,388 94	\$4,480 91	\$5,154 105	\$6,908 138	\$5,595 111	\$5,595 111	\$5,595 111
11.12.16	Sedan / Station Wagon	# of Units	\$599 20	\$269 9	\$359 12	\$359 12	\$519 17	\$311 10	\$254 8	\$259 8	\$330 10	\$843 25	\$791 23	\$701 20		
11.12.33	Ferry Boats	# of Units														
	Total Capital Needs	# of Units	\$8,661 159	\$4,899 70	\$9,256 88	\$5,622 52	\$9,138 103	\$22,831 160	\$14,267 124	\$16,417 136	\$9,325 120	\$11,015 152	\$10,901 178	\$17,306 166	\$10,901 178	\$17,306 166

- All Districts
- USA Other
- Bristol
- Salem
- Lynchburg
- Richmond
- Hampton Roads
- Fredericksburg
- Culpeper
- Staunton
- Northern Virginia

Grant Line Item Evaluation [Create Report](#)

Score status: Up to date Grantees: Grant Version:
Activities: DRPT Policy:

Rank	FTA Code	Grantee	Total Score (%)	Asset Management		Public Benefit		DRPT Assessment		Line item Amount (\$K)
				Needs	6-Yr Plan	B/C	(\$K)	Readiness	Other	
1	11.12.15	AASC / Four County Transit	100	10	-	-	-	-	-	39.0

AASC / Four County Transit

[11.12.15] Purchase Replacement Vans
 1 unit at \$39,000.00 per unit
 Status: Submitted

Needs: 10 Fully consistent with AM assessment
 6-Yr Plan: - Not applicable
 Readiness: -
 Other DRPT: -

Funding Locked In: No
 MTF Locked Out: No

2	11.12.15	JAUNT, Inc.	67	7	-	-	-	-	-	600.0
3	11.12.03	Charlottesville Area Transit	56	6	-	-	-	-	-	93.9
4	11.12.15	Greene County Transit, Inc.	45	5	-	-	-	-	-	134.3
5	11.12.02	Charlottesville Area Transit	12	2	-	-	-	-	-	928.2
6	11.12.01	DRPT Test Account 7	1	1	-	-	-	-	-	700.0
6	11.12.15	Williamsburg Area Transit Authority	1	1	-	-	-	-	-	150.0
6	11.12.16	subsidiary 2	1	1	-	-	-	-	-	50.0
6	12.12.20	NVTC - VRE	1	1	-	-	-	-	-	5,749.0
6	11.12.15	NRV Senior Services/Pulaski Area Transit	1	1	-	-	-	-	-	54.0

Virginia Department of Rail and Public Transportation

Capital Needs Report

5/31/2011 5:42:13 PM

Fiscal Year: 2012

Rolling Stock Approach: ESLMST

Grantee: Williamsburg Area Transit Authority

Exclusive of Spare Ratio Vehicles

Six-Year Plan Summary

FTA Description	Needs \$K (Units)					
	2012	2013	2014	2015	2016	2017
Bus, Rolling Stock	\$3,298(22)	\$423	\$2,566	\$535	\$2,003	\$3,533
Rail, Rolling Stock						
Station Stops/Terminals (All)						
Support Facilities & Equipment						
Busway						
Traction Power						
Control/Signal System						
Route Signing	\$5(44)	\$2	\$2	\$3	\$3	\$3
Passenger Shelters	\$23(4)	\$12	\$12	\$12	\$13	\$13
Other Capital Needs	\$29(6)	\$15	\$15	\$16	\$16	\$16
Totals:	\$3,355(76)	\$453	\$2,596	\$565	\$2,035	\$3,565



Global Parameters

Capital Needs Calculation Status	
Status	
Recalculation needed	

Miscellaneous Parameters	
Description	Value
Fiscal Year	2012 ▾
Default Planning Horizon (years)	26
Inflation Rate (percent)	<input type="text" value="2.000"/>
Interest rate accrued on Banked Facility Funds (percent)	<input type="text" value="0.000"/>
Default Spare Ratio (percent)	<input type="text" value="20"/>
Minimum Spare Ratio Fleet Size	<input type="text" value="50"/>
Buildup Years	<input type="text" value="4"/>
Rule Family used for Asset Management Scoring	ESLMST ▾
WMATA Grantee ID	<input type="text" value="300"/>

Facility Cost Spread	
Year	Cost Distribution (%)
Completion Year	<input type="text" value="55.0"/>

Future Trans-AM System

System Features

- Web based – can be installed by an agency or run “in the cloud”
- Relies on free, open-source databases and related tools
- Open XML interfaces – support linkages with existing databases and systems

Future Trans-AM System

Project Benefits

- Advanced approach based on established, proven technology
- Open source community involvement spurs innovation among industry, research, academic, and vendor communities
- Users will be freely able to modify and adapt the system to meet their own needs

Future Trans-AM System Work Plan

1. Identify a “Peer panel” of transit properties to define requirements
2. Develop visual prototypes to refine and agree on the system design
3. Iterative, incremental development
4. Deployment, implementation, training, and support for DRPT and PennDOT
5. Establish Open Source project, training, & outreach

Future Trans-AM System

Core Functions

- Store, maintain, edit, and report on capital assets, including identifying information, condition, and age.
- Predict capital needs using flexible and customizable deterioration and aging models
- Define projects and programs to replace, rehabilitate and overhaul capital assets
- Define, maintain, edit and report on funding sources, including long-term and short term funding scenarios
- Perform supervisory functions for member agencies

Future Trans-AM System

Additional Functions for PennDOT

- Integration with the Pennsylvania dotGrants software
- Integration of Trans-AM with the PennDOT Twelve-Year Plan (TYP) and Transportation Improvement Program (TIP)
- Capabilities related to Pennsylvania-specific funding processes and programs, including unique workflows for project submission, review, and approval

Future Trans-AM System

Next Steps

- PennDOT and DRPT intergovernmental agreement
- Form panel of transit agencies
- Begin requirements gathering in the next month or two