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Think  Forward

FY18 Capital Project Prioritization Results

presented to

*Transit Service Delivery Advisory Committee
(TSDAC)*

presented by

Cambridge Systematics, Inc.

Thomas Harrington

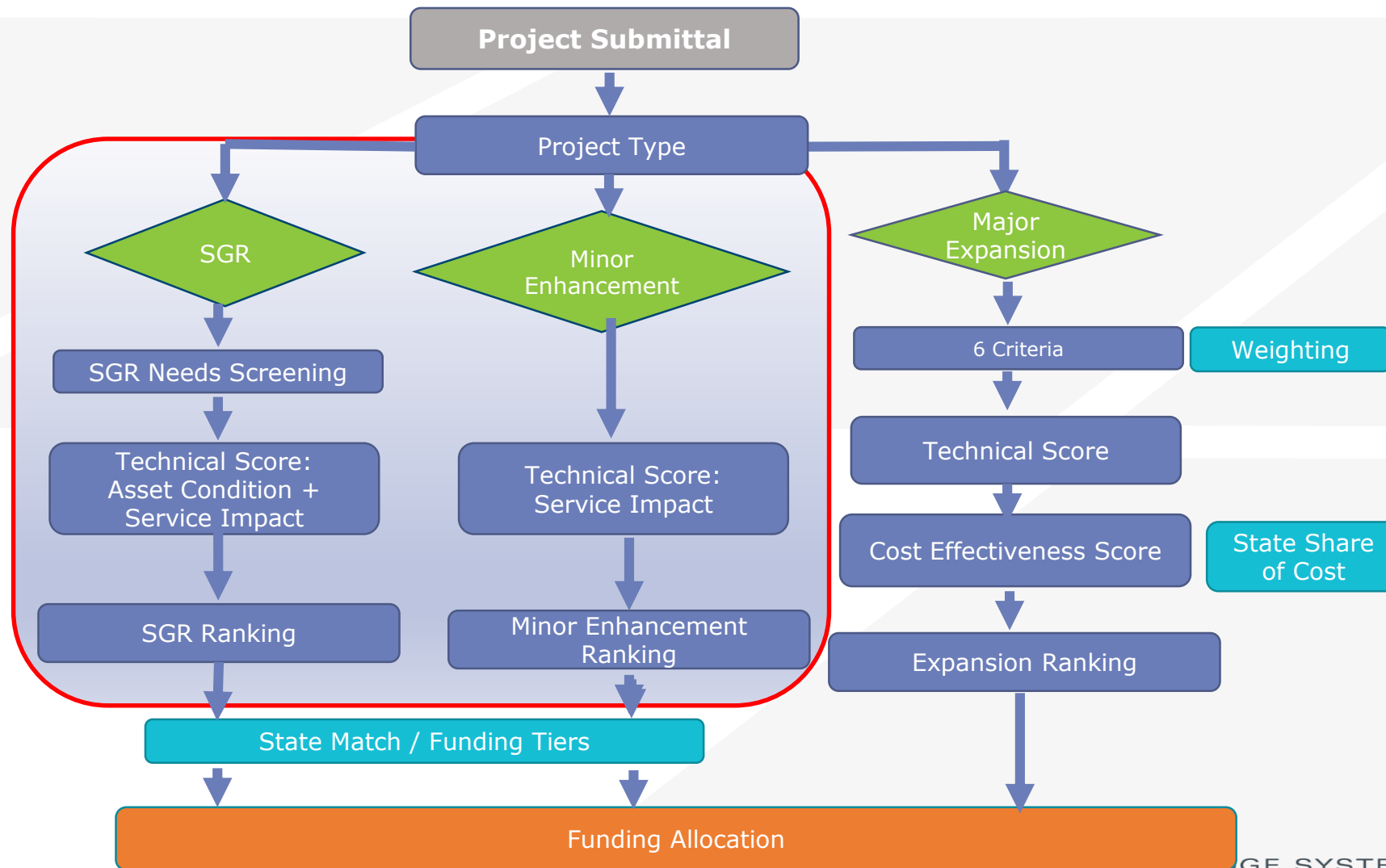
April 11, 2018

Presentation Outline

- Review of Scoring Methodology
- Overview of Prioritization Results
- Individual Project Scoring
- Next Steps

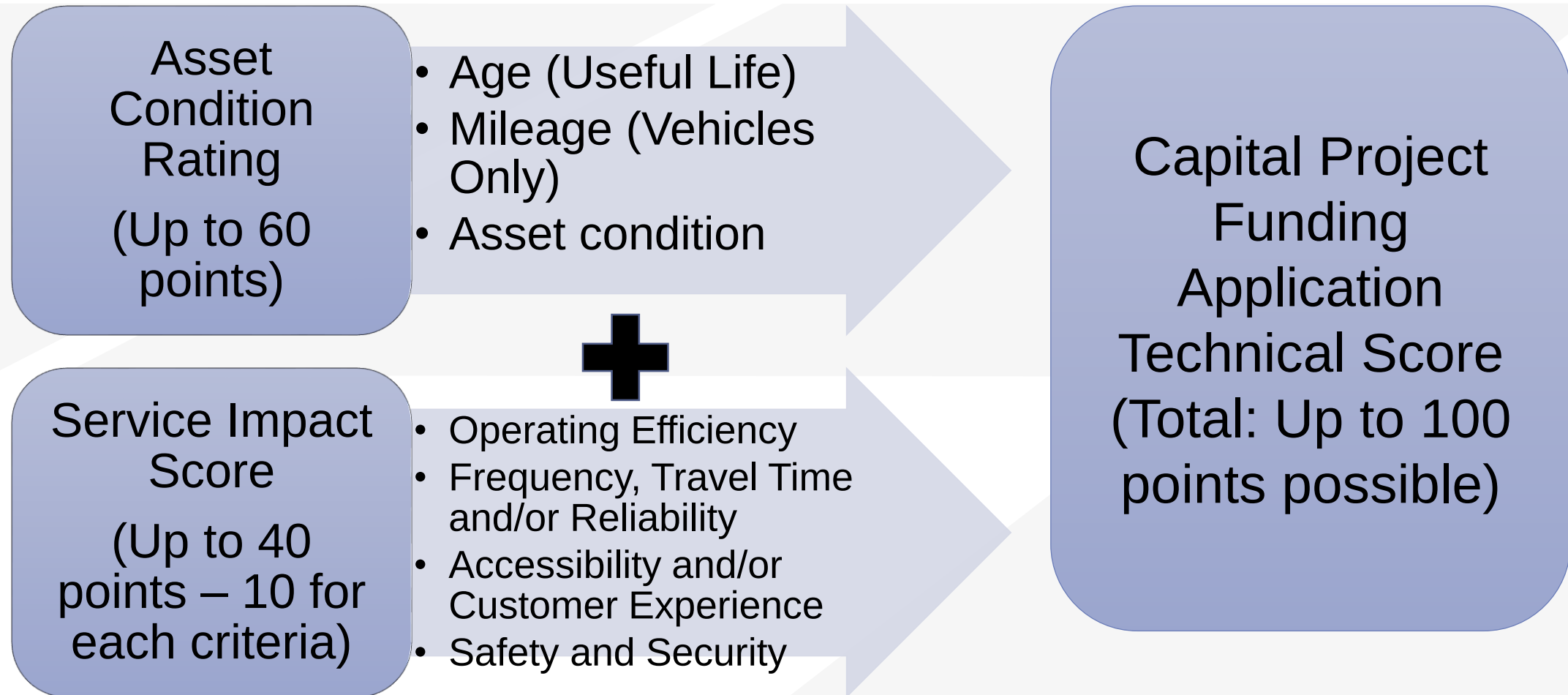
Review of Scoring Methodology

Current Focus - SGR and Minor Expansion Scoring



Scoring Methodology

State of Good Repair Projects



Scoring Methodology

Minor Enhancement Projects

Service Impact
Score
(Up to 40 points –
10 for each
criteria)

- Operating Efficiency
- Frequency, Travel Time and/or Reliability
- Accessibility and/or Customer Experience
- Safety and Security

Capital Project
Funding
Application
Technical Score
(Total: Up to 40
points possible)

Asset Condition Rating – Age and Mileage

- Asset condition score is the maximum score between the age and mileage-based scoring systems
- Age and mileage beyond useful life considered

Age Score System	
< ULB	0
=0 years beyond ULB	30
<=1	35
<=2	40
<=3	45
<=4	50
<=5	52
<=6	54
<=7	56
<=8	58
>8	60

Mileage Score System	
< Max Mileage	0
=0 miles beyond max	30
<=25,000	35
<=50,000	40
<=75,000	45
<=100,000	50
<=125,000	52
<=150,000	54
<=175,000	56
<=200,000	58
>200,000	60

Service Impact Rating

Criteria	Definition
Service Frequency, Travel Time and/or Reliability	Speeds up transit routes or allows for increased frequency. Significant impact on reliability either through preventing breakdowns or removing vehicles from mixed traffic
Service Operating Efficiency	Provides for significantly more cost-effective provision of service
Service Accessibility and/or Customer Experience	Significant improvement in a customer's ability to access the system or a significant improvement in the ease of use of the system.
Safety and Security	Provides a significant improvement in safety or security

Service Impact - Proposed Ratings by Project Type

Primary Type	Secondary Type	Operating Efficiency	Frequency, Travel Time and/or Reliability	Accessibility and/or Customer Experience	Safety and Security
Admin/Maintenance Facilities	Facility Maintenance	Medium Impact	Medium Impact	Medium Impact	Medium Impact
Admin/Maintenance Facilities	Lease - Bus Transfer Facility	Medium Impact	Medium Impact	Low Impact	Low Impact
Admin/Maintenance Facilities	Engineering Service - Fueling Station	Medium Impact	Medium Impact	No Impact	Medium Impact
Admin/Maintenance Facilities	Construction Management Service	Medium Impact	Medium Impact	Medium Impact	Medium Impact
Bus Shelters/Customer Facilities	Bus Shelter Installation	No Impact	No Impact	High Impact	Medium Impact
Bus Shelters/Customer Facilities	Bus Shelter Installation - Components	Low Impact	No Impact	Medium Impact	Medium Impact
Bus Shelters/Customer Facilities	Transit Center Facilities Construction	Medium Impact	Low Impact	High Impact	Medium Impact
Bus Shelters/Customer Facilities	Wayfinding Aids - Signage	No Impact	No Impact	Medium Impact	High Impact
Bus Shelters/Customer Facilities	Graphics Package for Vehicles	No Impact	No Impact	Medium Impact	High Impact
Bus Shelters/Customer Facilities	Facility Construction - Parking	Medium Impact	Medium Impact	High Impact	Medium Impact
Maintenance equipment & parts	Engineering Service - Fueling Station	Medium Impact	Low Impact	No Impact	No Impact
Maintenance equipment & parts	Maintenance Inspection	Low Impact	Medium Impact	No Impact	High Impact
Maintenance equipment & parts	Purchase Bus Replacement Batteries	Medium Impact	Medium Impact	Medium Impact	High Impact
Maintenance equipment & parts	Maintenance Materials	Medium Impact	Medium Impact	Medium Impact	Medium Impact
Maintenance equipment & parts	Software Purchase - Vehicle Maintenance	Medium Impact	Low Impact	Low Impact	High Impact
System Infrastructure	Facility Improvement	High Impact	Medium Impact	Medium Impact	Medium Impact
System Infrastructure	Transit Center Facilities Construction	Medium Impact	Low Impact	High Impact	Medium Impact
System Infrastructure	Project Management Support	Low Impact	Medium Impact	Medium Impact	No Impact
Technology - Administrative	Admin Computer Hardware Purchase (Computers/Laptops/Tablets, etc)	Low Impact	Low Impact	Low Impact	Low Impact
Technology - Administrative	Software Purchase - Administrative	Low Impact	Low Impact	Low Impact	Low Impact
Technology - Operations	Admin and Operations Software Renewal	Low Impact	Medium Impact	Low Impact	No Impact
Technology - Operations	Operations Software - Customer Service	Low Impact	Medium Impact	High Impact	Medium Impact
Technology - Operations	Rider Support Hardware - ITS/Communication	Medium Impact	Medium Impact	Medium Impact	Medium Impact
Technology - Operations	Rider Support Hardware - Fare Collection	High Impact	Medium Impact	Medium Impact	Low Impact
Technology - Operations	Rider Support Hardware - Safety	No Impact	No Impact	Medium Impact	High Impact
Technology - Operations	Software Purchase - On board	Medium Impact	Medium Impact	Low Impact	Low Impact
Technology - Operations	Software Purchase - Scheduling	High Impact	High Impact	High Impact	Low Impact
Vehicle - Revenue vehicles	Engine Replacement	High Impact	High Impact	Medium Impact	High Impact
Vehicle - Revenue vehicles	Paratransit Vehicles	High Impact	High Impact	High Impact	Low Impact
Vehicle - Revenue vehicles	Expansion Bus/Vehicle	Medium Impact	High Impact	High Impact	Low Impact
Vehicle - Revenue vehicles	Purchase Replacement Bus	High Impact	High Impact	High Impact	Medium Impact
Vehicle - Revenue vehicles	Purchase Support Vehicles	Medium Impact	Medium Impact	Low Impact	Low Impact
Vehicle - Revenue vehicles	Contracting - Capital Cost	High Impact	High Impact	Medium Impact	Low Impact
Vehicle - Revenue vehicles	Vehicle Maintenance - Overhaul	High Impact	High Impact	Medium Impact	Medium Impact

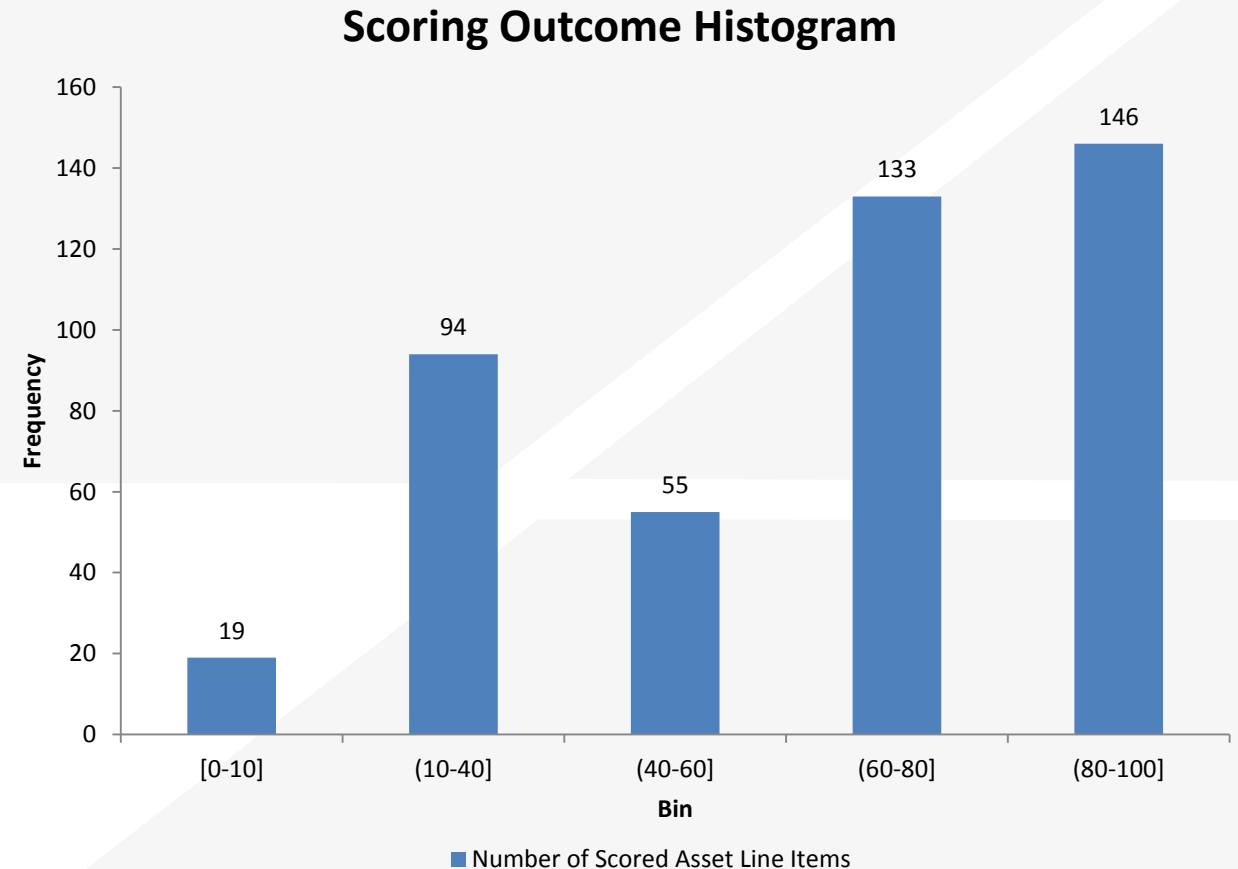
High (significant improvement) – 10 points
Medium (moderate improvement) – 6 points
Low (marginal improvement) – 3 point
No Impact – 0 points

Overview of Prioritization Results

Overall Scoring Summary

- 30 asset-level application line items scored 90 or higher
- 62 percent of line items have scored 60 points or more
- 75 percent of line items have scored 40 or more points (upper limit for minor expansion total score)

Note that vehicle assets have been disaggregated to an individual asset level.



SGR Projects Scoring Summary

- Vehicle and Non-Vehicle Assets
- Vehicle Applications Disaggregated
 - » Revenue Vehicles: 70 requests to 293 individual assets
 - » Vehicle replacement and maintenance score higher among all other project types.

State of Good Repair - Project Type	Sample Size	Average Score
Admin/Maintenance Facilities	9	57
Bus Shelters/Customer Facilities	5	51
Maintenance equipment & parts	15	56
System Infrastructure	5	53
Technology - Administrative	16	53
Technology - Operations	11	57
Vehicle - Revenue vehicles	293	73
Total	354	70

Minor Expansion Projects Scoring Summary

- Vehicle and Non-Vehicle Assets
- Service Impact Score up to 40 points
 - » No asset condition score.
- Revenue vehicles score marginally higher than other categories

Minor Enhancement - Project Type	Sample Size	Average Score
Admin/Maintenance Facilities	7	21
Bus Shelters/Customer Facilities	18	17
Maintenance equipment & parts	3	23
System Infrastructure	1	22
Technology - Operations	22	21
Vehicle - Revenue vehicles	42	32
Total	93	25

State-of-Good Repair: Average Scores by Project Type

Project SubType	Asset Condition	Operating Efficiency	Frequency, Travel Time and/or Reliability	Accessibility and/or Customer Experience	Safety and Security	Project Score
Admin/Maintenance Facilities	33	6	6	6	6	57
Bus Shelters/Customer Facilities	35	0	0	8	8	51
Maintenance Equipment & Parts	33	6	6	5	6	56
System Infrastructure	30	10	6	6	1	53
Technology - Administrative	41	3	3	3	3	53
Technology - Operations	34	5	5	6	6	57
Vehicle - Revenue vehicles	41	9	9	9	5	73



Minor Enhancement Projects: Average Scores by Project Type

Project SubType	Operating Efficiency	Frequency, Travel Time and/or Reliability	Accessibility and/or Customer Experience	Safety and Security	Project Score
Admin/Maintenance Facilities	6	6	3	6	21
Bus Shelters/Customer Facilities	2	1	8	7	17
Maintenance Equipment & Parts	6	5	5	7	23
System Infrastructure	10	6	6	0	22
Technology - Operations	4	4	6	6	21
Vehicle - Revenue Vehicles	9	10	10	3	32

Individual Project Scoring

SGR – Bus Replacement

➤ Grantee: Greater Richmond Transit Company

➤ Project: Purchase Replacement Bus 40-ft (26 buses total – 7 shown)

Application #	Grantee	In Service Date	Mileage	ESL (Mi)	ESL (Years)	Age (years)	Asset Condition Score	Service Quality Impact Score	Technical Score
10322	Greater Richmond Transit Company	1/4/2001	329,369	500,000	12	16.4	52	36	88
10322	Greater Richmond Transit Company	2/5/2001	469,243	500,000	12	16.3	52	36	88
10322	Greater Richmond Transit Company	2/6/2001	480,962	500,000	12	16.3	52	36	88
10322	Greater Richmond Transit Company	2/6/2001	446,527	500,000	12	16.3	52	36	88
10322	Greater Richmond Transit Company	2/7/2001	478,801	500,000	12	16.3	52	36	88
10322	Greater Richmond Transit Company	6/1/2003	152,345	500,000	12	14.1	45	36	81
10322	Greater Richmond Transit Company	6/1/2003	134,457	500,000	12	14.1	45	36	81

SGR – Bus Replacement

- Grantee: City of Charlottesville
- Project: Purchase Replacement Bus < 30-ft.
 - » Replace 2011 Chevy Body-On-Chassis 19-passenger bus

Application #	Grantee	In Service Date	Mileage	ESL (Mi)	ESL (Years)	Age (years)	Asset Condition Score	Service Quality Impact Score	Technical Score
10173	Charlottesville Area Transit	9/28/2011	79,523	100,000	4	5.8	40	36	76

Next Steps

- Review prioritization results for FY18 SYIP (SGR and ME) projects
- Demonstrate application of funding rules and constraints to prioritized capital program

APPENDICES

Project Types

- **State-of-Good Repair (SGR):** Projects/programs to replace or rehabilitate an existing asset
 - » Includes acquiring assets/technology to serve current functions
- **Minor Enhancement:** Projects/programs to add capacity, new technology, or a customer enhancement meeting the following:
 - » Project costs less than \$2 million, OR
 - » Expansion vehicles: less than 5 vehicles or less than 5% of fleet
- **Major Expansion:** New projects/programs that add, expand, or improve service (greater than \$2M)

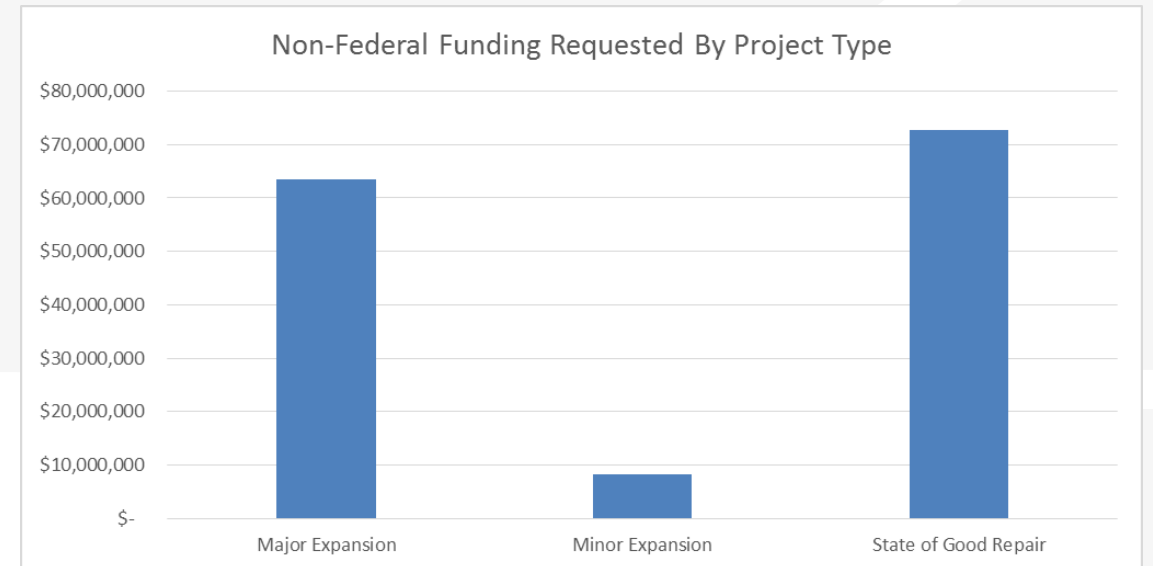
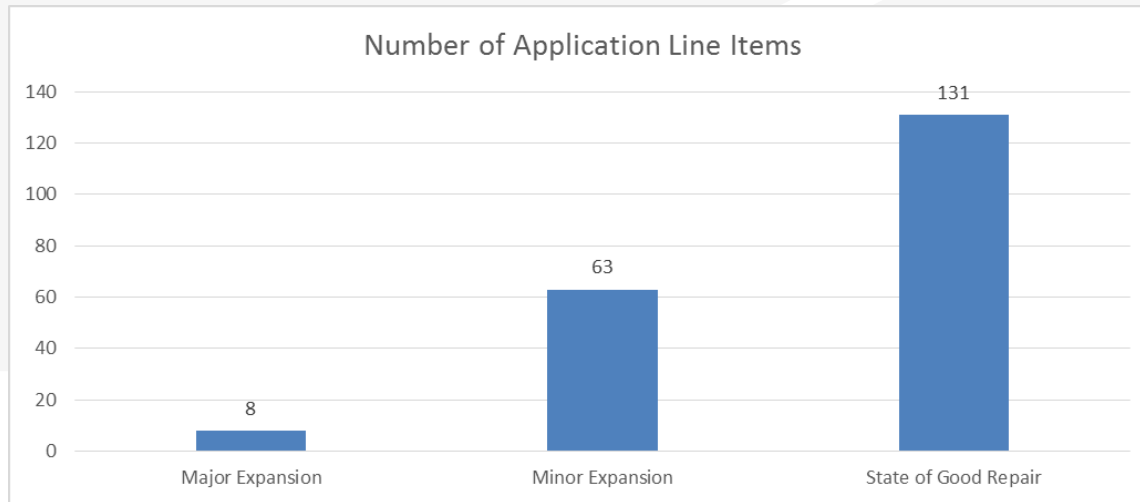
Capital Program Items Classified as “Other” – Will Not Be Scored

- Projects with no state transit funding contribution – ex. 5310 Capital (with federal and local funding only)
- VRE track lease payments
- WMATA

Note: Projects described as debt service, vehicle lease payments, or project management will be rated based on the underlying asset or project type.

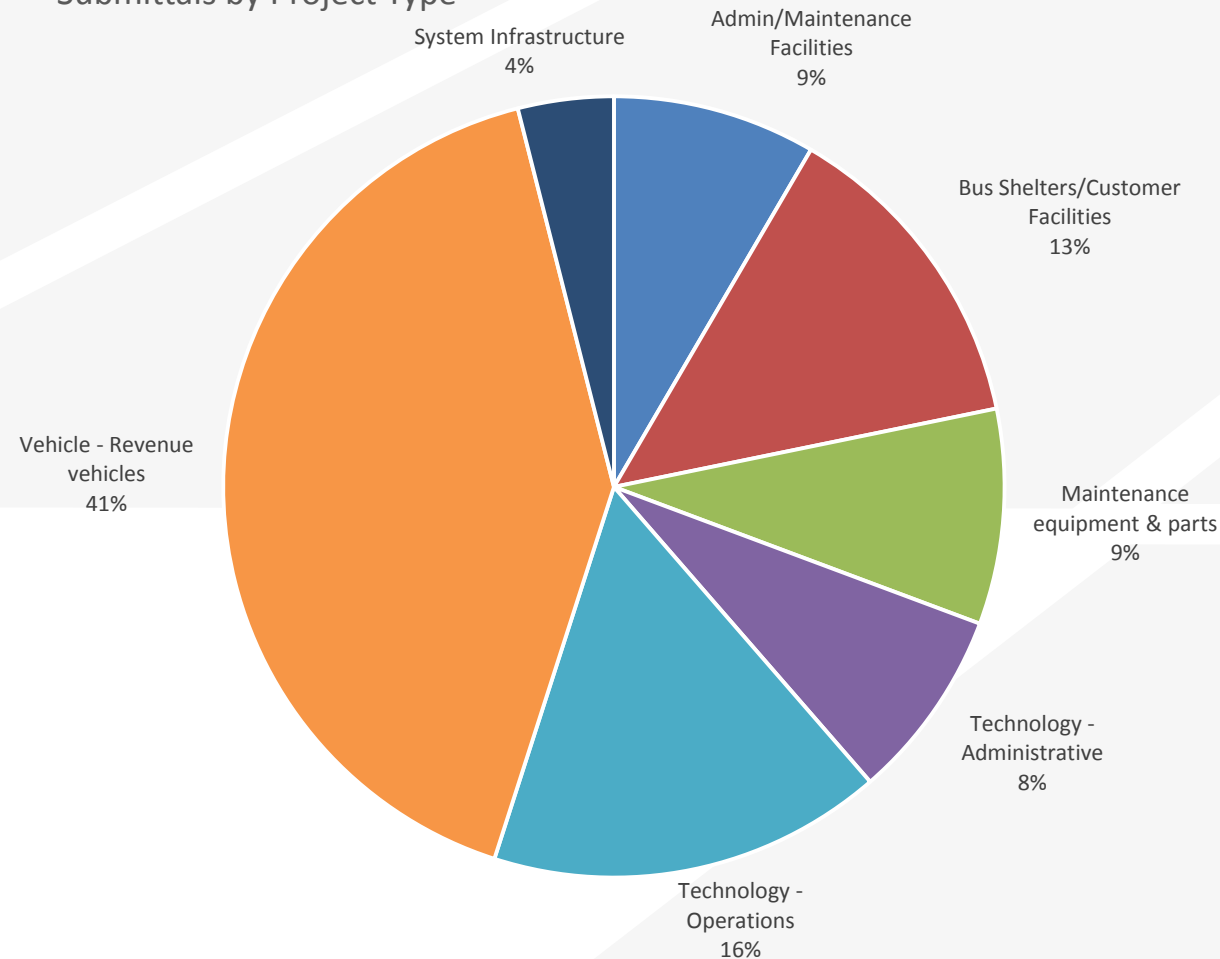
Summary of FY 18 Capital Application Requests

➤ FY 18 Applications (Not including WMATA/Other projects)



Summary of FY 18 Capital Application Requests

Submittals by Project Type



Note: Does not include WMATA/Other projects

FY18 SYIP - State-of-Good Repair Projects

➤ Vehicle Replacement

- » Replacement buses (< 30-ft, 35-ft, 40-ft)
- » Support Vehicle Replacement

➤ Admin/Maintenance Facilities

- » Rehab/renovation/engineering and design of admin/bus maintenance facility
- » Construction and rehabilitation of rail-related facilities, rail cars, or locomotives

➤ Bus Shelters/Customer Facilities

- » Bus shelters and components
- » Bus stop accessibility (ADA)
- » Bus route signage

➤ Maintenance Equipment & Parts

- » Mid-life and end-of-life overhaul/rebuilding
- » Spare Parts, Hybrid Bus Batteries
- » Shop Equipment

➤ Technology/Systems/Communications

- » Fare payments systems and hardware
- » Safety/surveillance/security equipment and systems
- » Software and hardware to support AVL, payroll and administration, planning and scheduling, real-time passenger information and reporting

➤ System Infrastructure

- » Rail infrastructure

FY18 SYIP - Minor Enhancement Projects

- Vehicles - minor fleet expansion
- New bus shelters
- Route signage (Bus Stop Signs)
- New fare collection equipment (fareboxes)
- New software, hardware, systems
- Minor facilities (fueling station, parking)
- Capital project development (engineering and design, construction management)

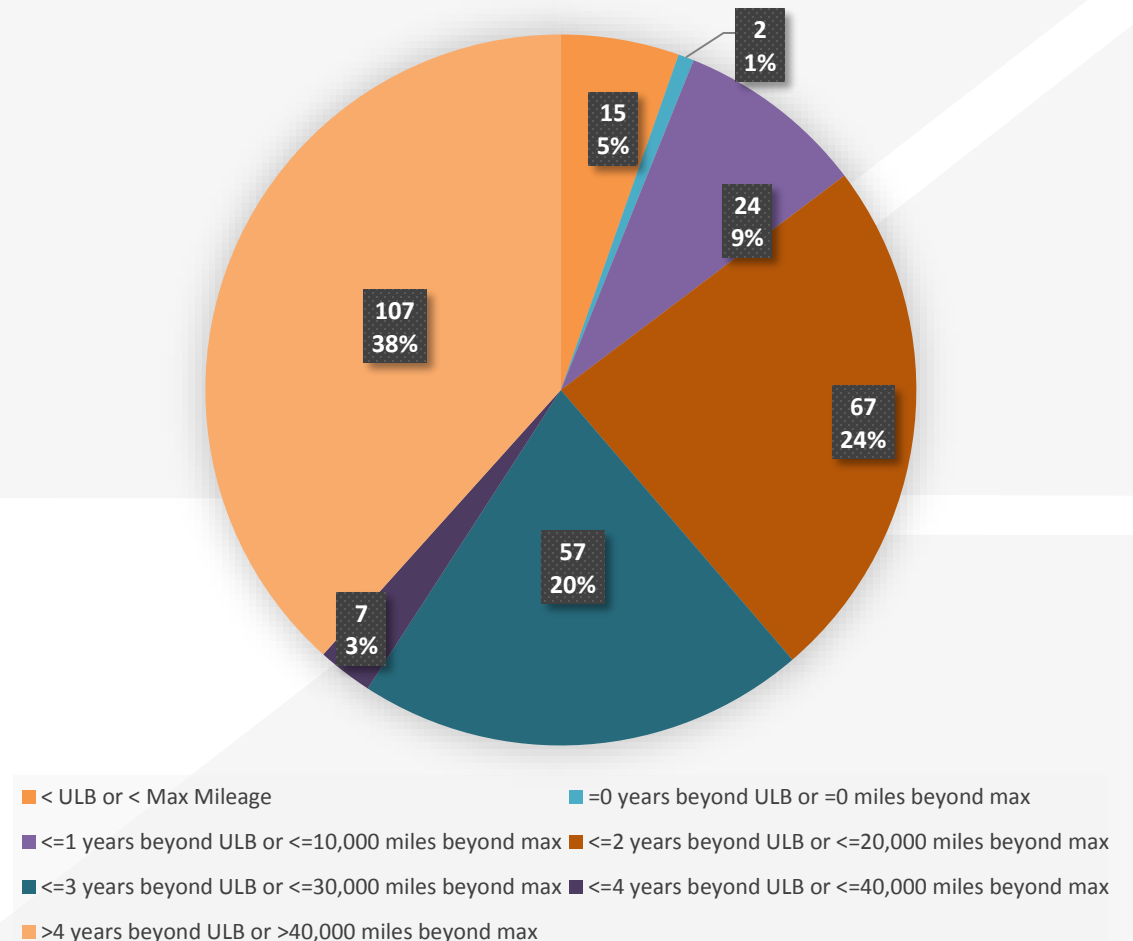
FY18 SYIP - Major Expansion Projects

- Transit Center Facilities Construction (Blacksburg MMTF)
- Purchase Expansion Bus 40-ft (ART)
- Facility Construction – Infrastructure (CCPY)
- Bus Bays / Shelter Installation (East Falls Church Station)
- Facility Construction – Parking (Silver Line - Innovation Station)
- Facility Construction – Parking (Silver Line - Herndon Station)
- Project Management Support (Route 1 BRT)

SGR – Asset Condition Methodology

- Data Source for Vehicle and Non-Vehicle Assets - TransAM
- Vehicle SGR applications submitted together for multiple vehicles disaggregated into individual vehicle line items
- Purpose of disaggregation was to assign age & condition
- 38 percent of vehicle assets seeking replacement are 4 years beyond ULB or 40,000 miles beyond useful life mileage

State of Good Repair - Vehicle Assets by Estimated Service Life



Useful Life Benchmark Policies

Capital Planning Tool (QA)

Richard Farr

Asset Replacement/Rehabilitation Policy

Policy Owner York County Transportation Authority
Description YCTA FY 15-16 Transit Policy
Parent Policy BPT Policy
Active ☒

Condition Estimation Calculation Straight Line ⓘ
Condition Threshold 2.50
Depreciation Calculation Type Straight Line ⓘ
Depreciation Interval Annually ⓘ

Policy Rules

Revenue Vehicles
Stations/Stops/Terminals
Support Vehicles
Maintenance Equipment
Communications Equipment

Service Life Calculation Method		Repl. Cost Calculation Method		Annual Inflation Rate		Pcmt Residual Value		Last Updated	
Age and Mileage		Replacement Cost + Interest		1.10		0%		07:58 AM 12/05/2015	

Asset Subtype	Fuel Type	ESL (Mo)	ESL (Mi)	Repl. Cost	Cost FY	Replace New	Replace Leased	Replace With	Replace Fuel Type	Lease Length (Mo)	Rehab Month	Rehab Labor	Rehab Parts	Change in ESL (Mo)	Change in ESL (Mi)	ESL Used (Mo)
Bus Std 40 FT	DF	144	500,000	\$395,500	FY 10-11	☒				0	0	\$0	\$0	0	0	48
Bus Std 35 FT	DF	144	500,000	\$375,000	FY 16-17	☒				0	0	\$0	\$0	0	0	48
Bus Std 35 FT	DF	144	500,000	\$375,000	FY 10-11	☒				0	0	\$0	\$0	0	0	48
Bus 30 FT	DF	120	350,000	\$317,000	FY 10-11	☒				0	0	\$0	\$0	0	0	48
Bus < 30 FT	DF	96	150,000	\$267,500	FY 16-17	☒				0	0	\$0	\$0	0	0	48
Bus	DF	144	500,000	\$490,000	FY 10-11	☒				0	0	\$0	\$0	0	0	48
Commuter/Suburban																
Bus Trolley Std	DF	144	500,000	\$325,000	FY 10-11	☒				0	0	\$0	\$0	0	0	48
Van	GA	48	100,000	\$23,500	FY 10-11	☒				0	0	\$0	\$0	0	0	48

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