



FTA's TERM Lite Model

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Topics

- TERM Federal
 - Overview of TERM Federal
 - Current National Backlog Estimates
- TERM Lite
 - Overview of TERM Lite
 - Industry Response
 - NTI Course
 - Data Issues

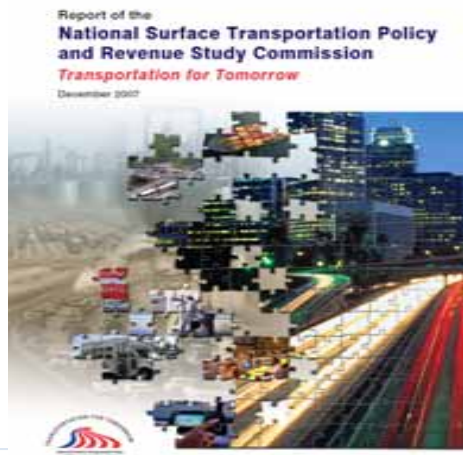
What is TERM Federal?

- Transit Economic Requirements Model
 - FTA's Capital Needs Analysis Tool
 - National level analysis of:
 - State of Good Repair backlog
 - Asset conditions
 - 20-year projection of reinvestment needs
 - Impact of variations in funding
 - Supports biennial C&P Report to Congress and related studies



What is TERM? – Other influential reports

The *National Surface Transportation Commission* examined the condition and future needs of the nation's surface transportation system



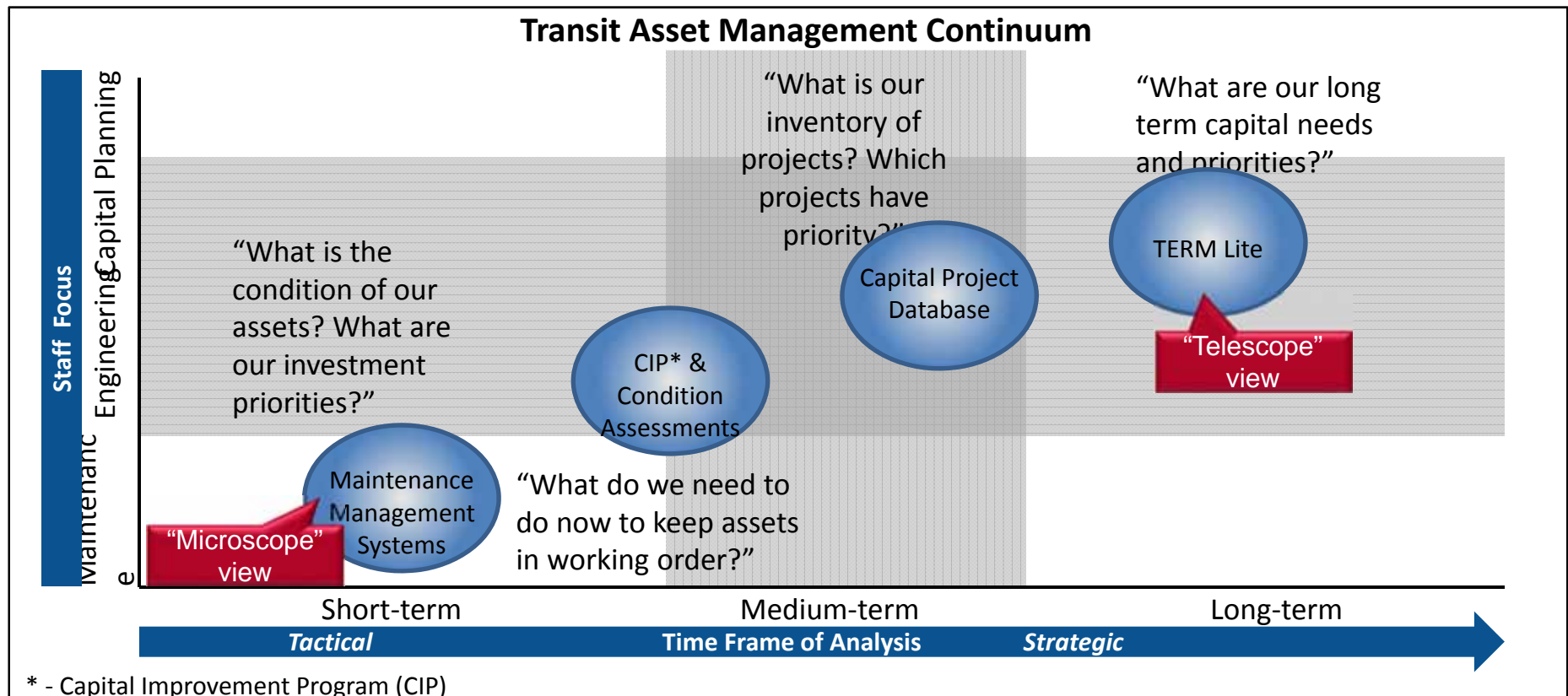
The *Rail Modernization Study* assessed the investment backlog and capital reinvestment needs of the nine largest rail operators



The *National State of Good Repair* assessed the investment backlog and capital reinvestment needs of the transit industry

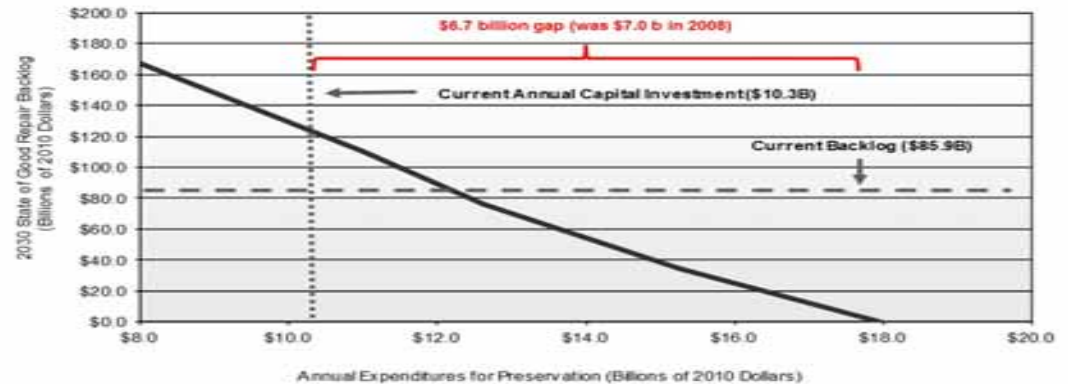
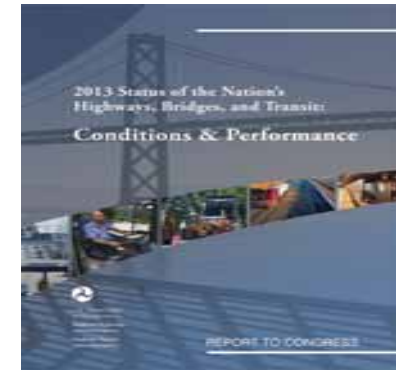


TERM: Long-Term Needs Analysis Tool



Current Backlog Estimated at \$86B

- Increase of roughly \$8B from prior estimate
- Results published in 2013 C&P report
- Increase reflects
 - Additional needs
 - Inflation
 - New Asset Data



What is TERM “Lite”?

- Local Version of TERM
 - Designed for local long-term SGR needs analysis
 - Free through FTA website
 - Adopted by wide range of



TERM vs. TERM Lite		
Capability	TERM	TERM-Lite
Level of Analysis	National	Local / Regional
Intended User Group	FTA	Local operators
Life Cycle Driver	Condition (estimated)	Age
Prioritization	Benefit-cost analysis	User defined criteria
Output Format	Access Tables	Excel
Output (current and forecast)	<ul style="list-style-type: none"> ▶ SGR backlog ▶ Asset conditions ▶ 20-yr reinvestment needs 	

How do Agencies use TERM Lite?

TERM Lite Capabilities		
Function	Question Addressed	TERM Output
SGR Monitoring	Where are we today?	<ul style="list-style-type: none"> ▶ Current SGR backlog ▶ Asset conditions
SGR Management ("What if" Analysis)	Where can I be tomorrow?	<ul style="list-style-type: none"> ▶ Is backlog increasing / decreasing? ▶ What level of investment to attain SGR in 10 years? 20 years? ▶ How will change in backlog impact service reliability? O&M Costs?
Long-Term Capital Plan Support	How should I prioritize limited investment dollars?	<ul style="list-style-type: none"> ▶ Multi-criteria prioritization rankings ▶ Long term SGR plan

How was TERM Lite Developed?

Cooperative Development



Chicago RTA



WMATA



San Jose



Metro

LA Metro



San Francisco
MTC



Salt Lake City, UTA

Requirements Analysis

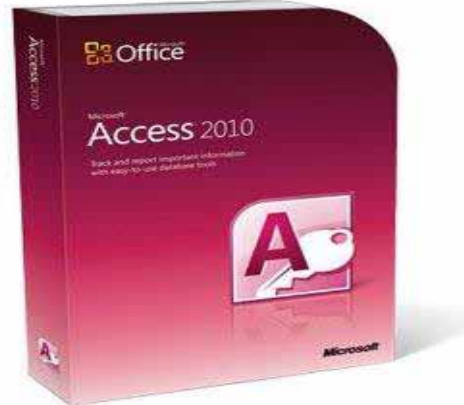
- What features do users want?
 - Ease of use
 - Monitor/estimate future backlog
 - Local level asset definitions
 - Investment prioritization
 - Asset to project mappings

What do you need to run TERM Lite?

✓ **Asset Inventory**

Code	Category	Element	Type	Quantity
51601	Vehicles	Heavy Rail	HR	3
51903	Vehicles	Motor Bus	BA	3
51903	Vehicles	Motor Bus	BA	300
51903	Vehicles	Motor Bus	BA	480
51901	Vehicles	Motor Bus	AB	226
51903	Vehicles	Motor Bus	BA	1010
51905	Vehicles	Motor Bus	BC	45
51903	Vehicles	Motor Bus	BA	10
51903	Vehicles	Motor Bus	BA	10
51901	Vehicles	Motor Bus	AB	73
53001	Vehicles	Car	-	84
53001	Vehicles	Car	-	4
53002	Vehicles	Truck	-	1
53002	Vehicles	Truck	-	116
53002	Vehicles	Truck	-	31
53002	Vehicles	Truck	-	31
53002	Vehicles	Truck	-	4
53002	Vehicles	Truck	-	6
53002	Vehicles	Truck	-	1
53002	Vehicles	Truck	-	28

✓ **MS Access**



✓ **User Training**



How Does TERM Lite Work?

What do I own & what condition is it in?

- Asset conditions and quantities
- Cost to replace

Asset Inventory



Investment Policy

- When to rehab & replace
- Funding
- Priorities

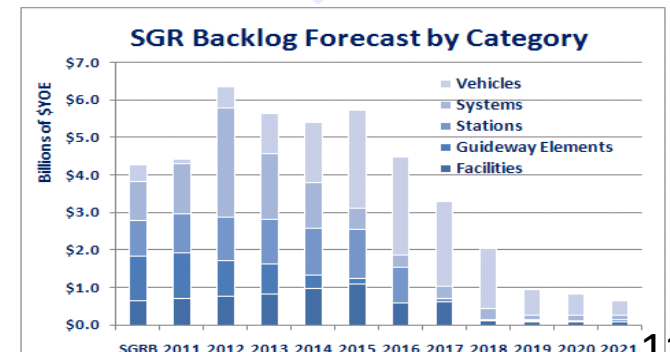
What would I like to do, how much funding do I have, what are my priorities?

- ✓ Safety
- ✓ Reliability
- ✓ Performance
- ✓ Cost Effective

What are my potential backlog, condition and performance outcomes?

- SGR backlog
- Asset conditions
- Reinvestment needs
- Prioritized

SGR Forecast



What Does TERM Lite Look Like?: User Interface

The screenshot shows the 'TERM Lite' application window. The title bar reads 'FTA Transit Economic Requirements Model: Lite version D'. The interface is divided into several sections:

- Model Setup:** Includes fields for 'Start Year' (set to 2013), 'Period' (set to 20), and 'Useful Life Factor' (set to 100.0%). Buttons for 'Scenario Settings' and 'Modify Input Data' are present.
- Run Model:** Features a 'Run Status' dropdown (set to 'idle'), 'Current Record' (0), and 'Forecast Year' (0). An 'Exclude Expansion Assets' checkbox is unchecked. A prominent red 'Run Model' button is visible, along with a note: 'Hit "Ctrl/Break" to Halt Run'.
- Model Output:** Contains buttons for 'View Output', 'Export to Excel', and 'Print Reports'.
- Run Notes:** A text area containing the note 'FTA TERM Lite 2015'.

Output Exportable to Excel

Tool Parameters

What do I control?

- Annual expenditure levels
- Timing and cost of asset:
 - Replacement
 - Rehabs (up to 5 per type)
 - Annual capital maintenance
 - Soft costs / contingencies
- Annual inflation assumptions
- Prioritization criteria (up to 5) and weights
- Output (export to Excel)

TERM Lite User Interface

The screenshot displays the TERM Lite user interface with several overlapping windows. The background window is titled "Asset Inventory" and includes tabs for "Asset Inventory", "Life Cycle Costs", and "Inflation". It contains a table with columns for "Asset Type", "Code", "Category", "Sub-Category", "Element", and "Sub-Element".

Overlaid on the left is a "Prioritization Criteria Settings" window, which includes sub-sections for "Prioritization Settings", "Expenditure Constraints", and "Backlog Target Seek". The "Backlog Target Seek" section has a text input field for "Backlog Target (Percent of Current Backlog)" and a "Target Year" field.

Overlaid on the right is an "Inflation Assumptions" window, which includes a "Life Cycle Cost Assumptions" section. This section contains:

- Asset Type:** Code: 10000, Category: Guideway Elements, Sub-Category: Guideway, Element: -, Sub-Element: -
- Rehabilitation Policy:** Number of Rehabs Allowed: 1 (dropdown). A table for rehab costs:

	First	Second	Third	Fourth	Fifth
Rehab Age (% of Useful Life)	25%	0%	0%	0%	0%
Rehab Cost (% of Replacement Cost)	25%	0%	0%	0%	0%
- Annual Capital Maintenance Cost (% of Replacement Cost):** 0.00%
- Replacement Policy:** Useful Life (Years; Default): 10, Replacement Not Permitted:
- Unit Cost (Default):** Unit Cost: \$4,543, Units: Linear Feet, Unit Cost \$Year: 2008

Two blue callout boxes with black outlines point to specific areas:

- The "Scenario Settings" box points to the "Backlog Target Seek" section of the "Prioritization Criteria Settings" window.
- The "Input Data" box points to the "Life Cycle Cost Assumptions" section of the "Inflation Assumptions" window.

At the bottom of the interface, a status bar shows "Record: 14 of 595" and a search field.

TERM Lite Reports

Category	Sub-Category	Element	Useful Life	Replacement Value	Condition Distributions				
					Excellent	Good	Adequate	Marginal	Worn
Metroville Transportation Authority, Light Rail									
Facilities	Buildings	Maintenance	50	\$36,066,007	3.4%	72.0%		24.6%	
Facilities	Equipment	Maintenance	10	\$36,760,419				27.5%	72.5%
Guideway Ele	Special Structures	Fencing	36	\$242,674	100.0%				
Guideway Ele	Special Structures	Retaining Walls	40	\$68,571		100.0%			
Guideway Ele	Trackwork	Ballasted	10 to 70	\$4,352,898	62.5%	24.2%	11.3%	2.0%	
Guideway Ele	Trackwork	Embedded	10 to 40	\$880,019	68.7%	19.0%	10.4%	1.9%	
Guideway Ele	Trackwork	Special	15 to 42	\$804,904	68.1%	24.8%	7.1%		
Stations	Access	Parking	20	\$12,980,771			95.6%	4.4%	
Stations	Complete Station	Light Rail	40	\$39,424,599	8.2%	91.8%			
Stations	Signage & Graphics	Static	20	\$626,775			100.0%		
Systems	Electrification	-	39 to 40	\$54,794	2.7%	97.3%			
Systems	Electrification	Category	30 to 40	\$88,822,222	10.8%	89.2%			

Expenditures Forecast: 2012 - 2042

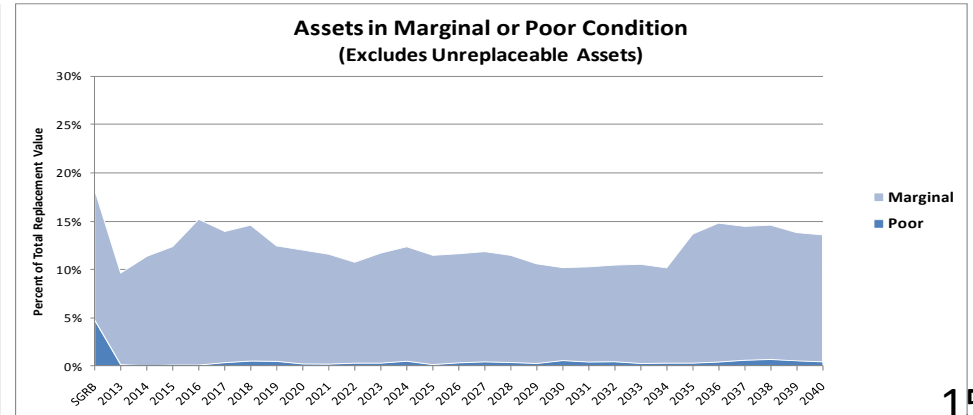
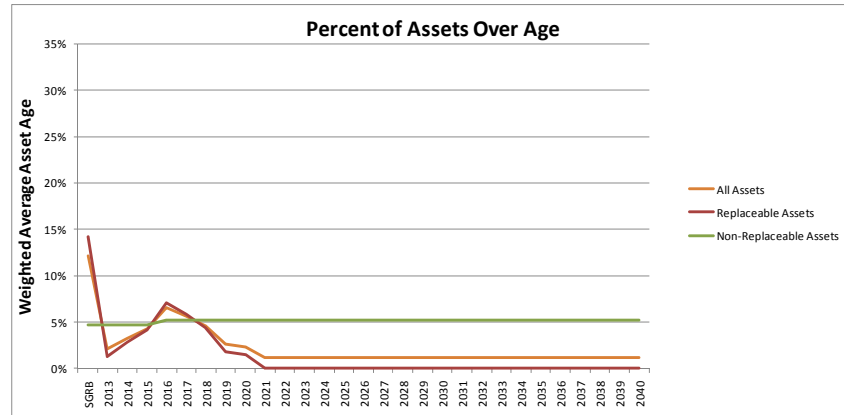
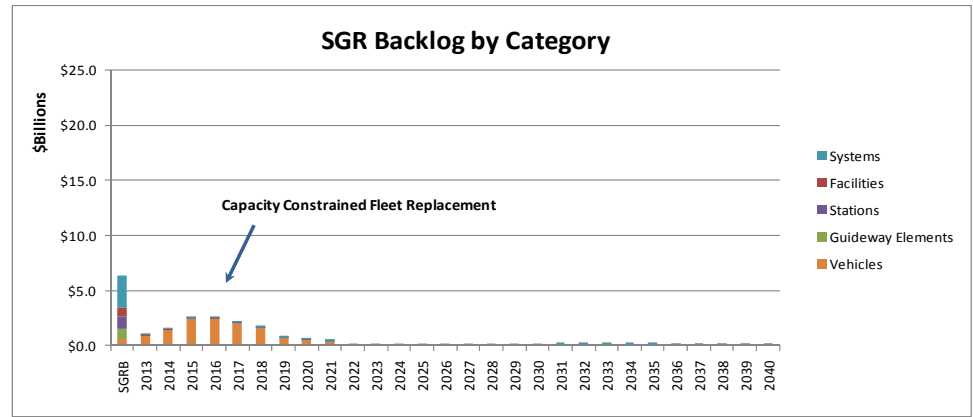
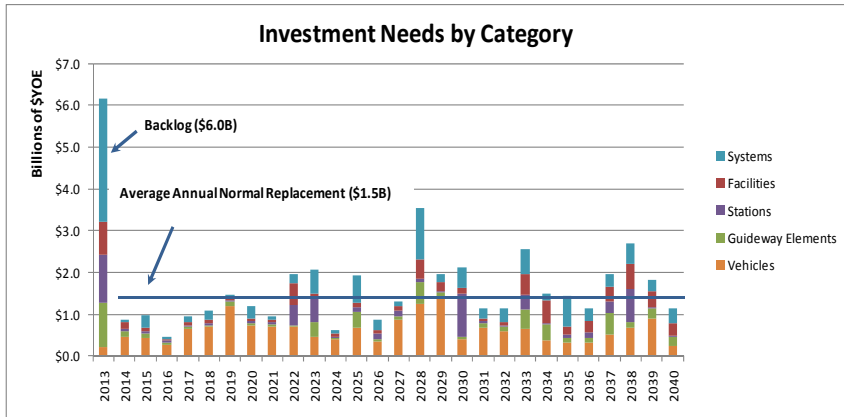
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Summary Report

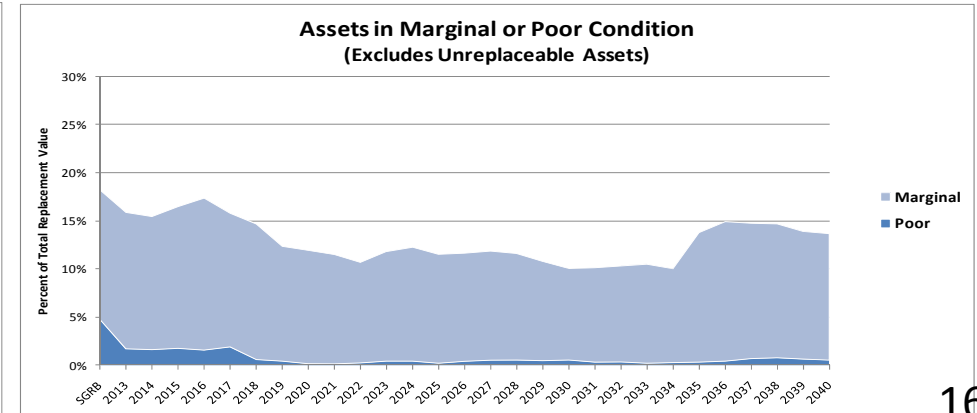
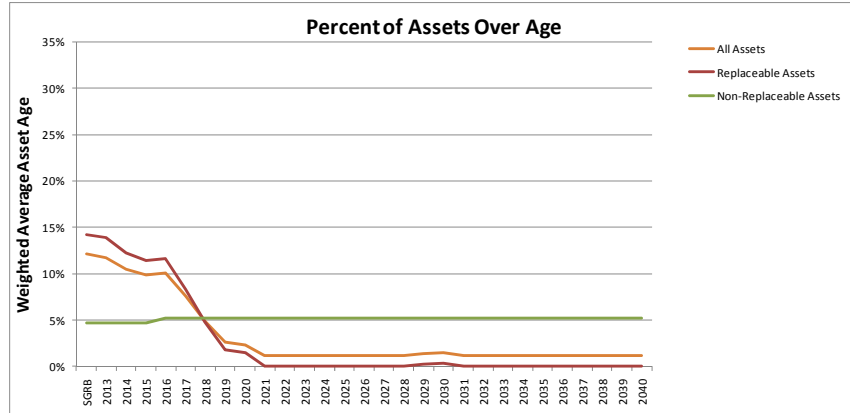
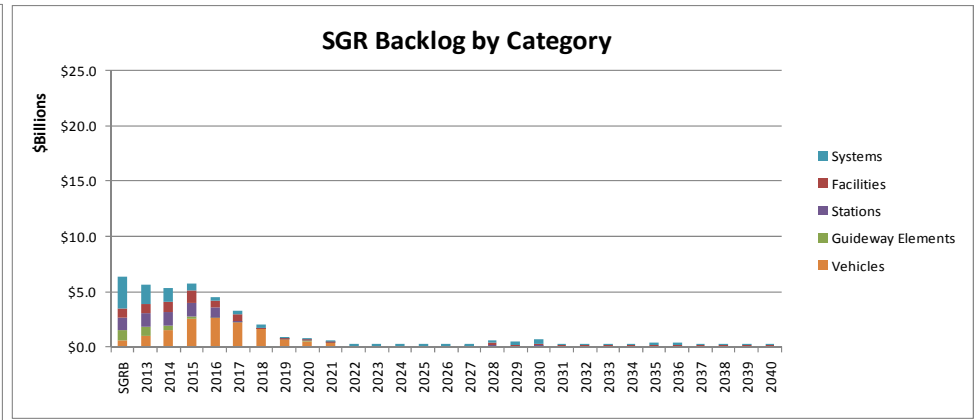
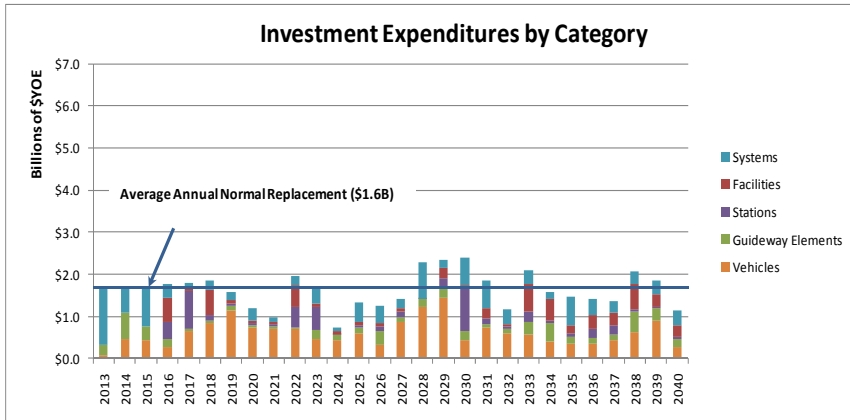
By Asset Category

Investment Type Mode / Asset Category	Five Year Totals (\$M)*							Five Year Annual Averages (\$M)*						
	2012	2013 to 2017	2018 to 2022	2023 to 2027	2028 to 2032	2033 to 2037	2038 to 2042	2013 to 2017	2018 to 2022	2023 to 2027	2028 to 2032	2033 to 2037	2038 to 2042	
Existing Assets - Rehab & Replace														
Commuter Bus														
Facilities	\$0.0	\$0.0	\$0.0	\$0.0	\$0.5	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.1	\$0.0	\$
Total: Commuter Bus	\$0.0	\$0.0	\$0.0	\$0.0	\$0.5	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.1	\$0.0	\$
Commuter Rail														
Facilities	\$0.0	\$1.1	\$28.7	\$14.7	\$74.5	\$0.0	\$0.0	\$0.2	\$5.7	\$2.9	\$14.9	\$0.0	\$0.0	\$
Guideway Elements	\$0.0	\$651.5	\$13.2	\$805.2	\$16.9	\$975.6	\$83.0	\$130.3	\$2.6	\$161.0	\$3.4	\$195.1	\$1	\$
Stations	\$0.0	\$7.9	\$92.3	\$3.1	\$112.6	\$0.0	\$0.0	\$1.6	\$18.5	\$0.6	\$22.5	\$0.0	\$0.0	\$
Systems	\$0.0	\$60.1	\$51.9	\$59.5	\$65.6	\$35.1	\$16.4	\$12.0	\$10.4	\$11.9	\$13.1	\$7.0	\$7.0	\$
Vehicles	\$0.0	\$85.4	\$14.7	\$18.8	\$91.0	\$25.6	\$46.9	\$17.1	\$2.9	\$3.8	\$18.2	\$5.1	\$5.1	\$
Total: Commuter Rail	\$0.0	\$806.0	\$200.8	\$901.4	\$360.5	\$1,036.3	\$146.3	\$161.2	\$40.2	\$180.3	\$72.1	\$207.3	\$2	\$
Demand Response														
Facilities	\$0.0	\$15.7	\$11.7	\$16.7	\$44.4	\$33.7	\$0.1	\$3.1	\$2.3	\$3.3	\$8.9	\$6.7	\$6.7	\$
Vehicles	\$0.0	\$289.9	\$277.8	\$285.3	\$362.0	\$344.7	\$408.7	\$58.0	\$55.6	\$57.1	\$72.4	\$68.9	\$68.9	\$8
Total: Demand Respons	\$0.0	\$305.6	\$289.5	\$302.0	\$406.4	\$378.4	\$408.8	\$61.1	\$57.9	\$60.4	\$81.3	\$75.7	\$8	\$

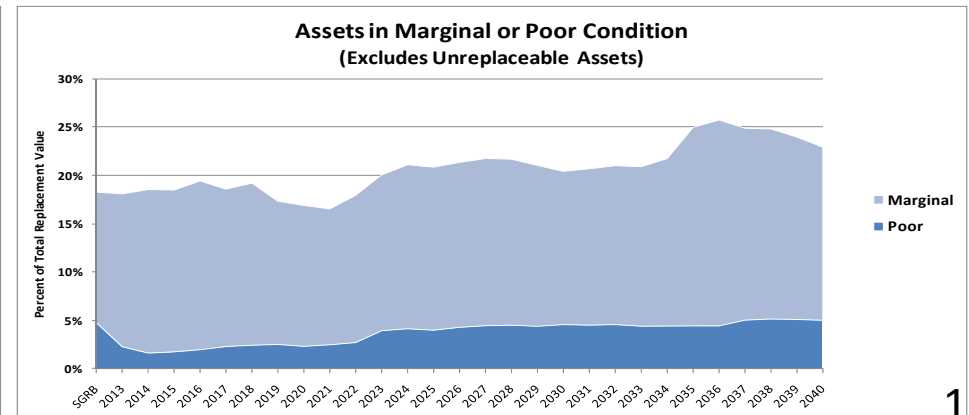
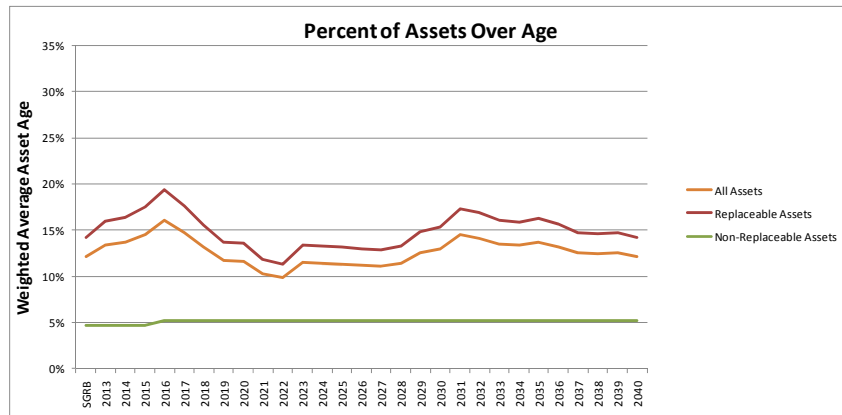
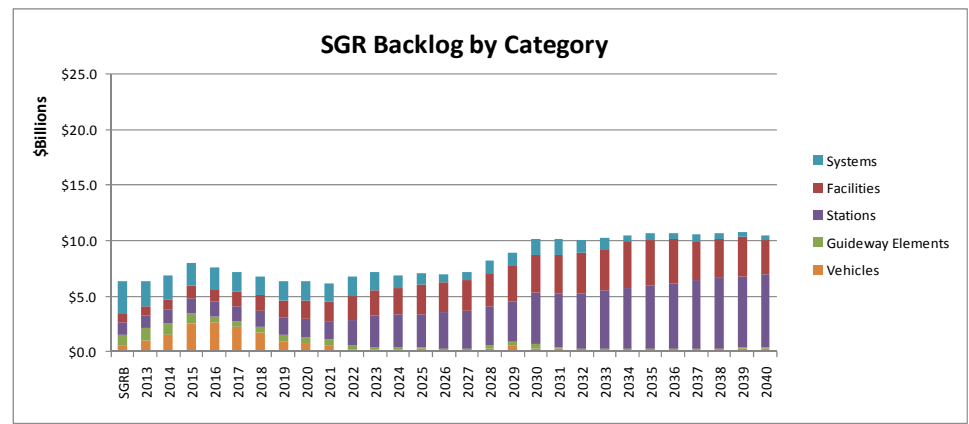
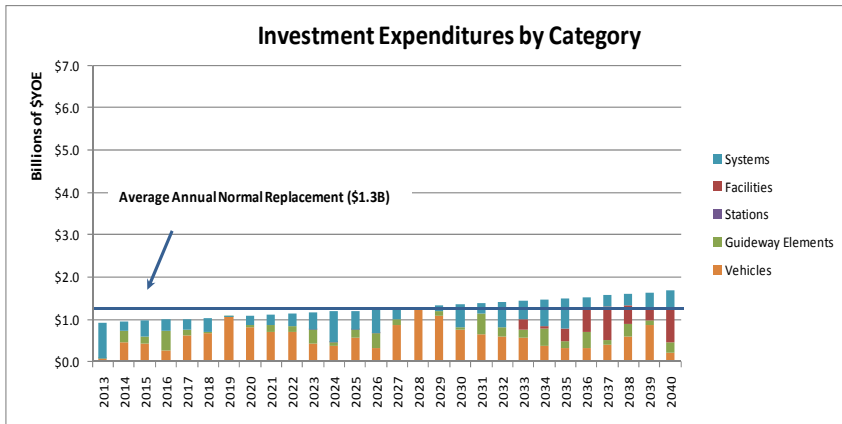
Sample Output: Unconstrained Funding (\$1.7B Avg.)



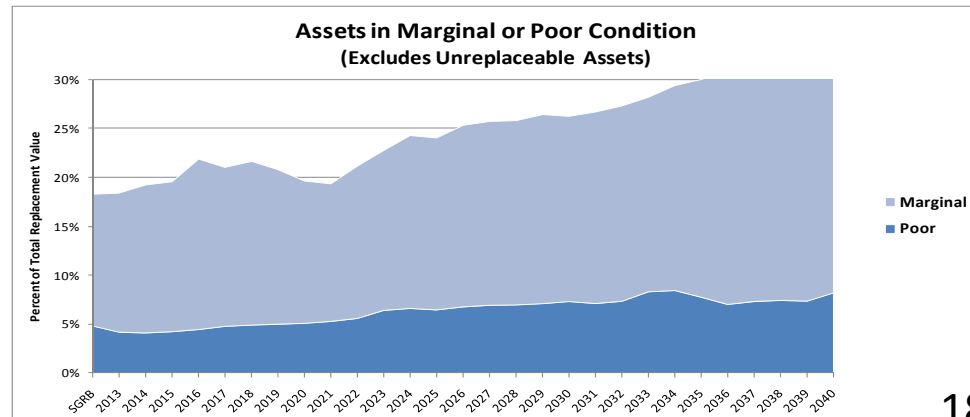
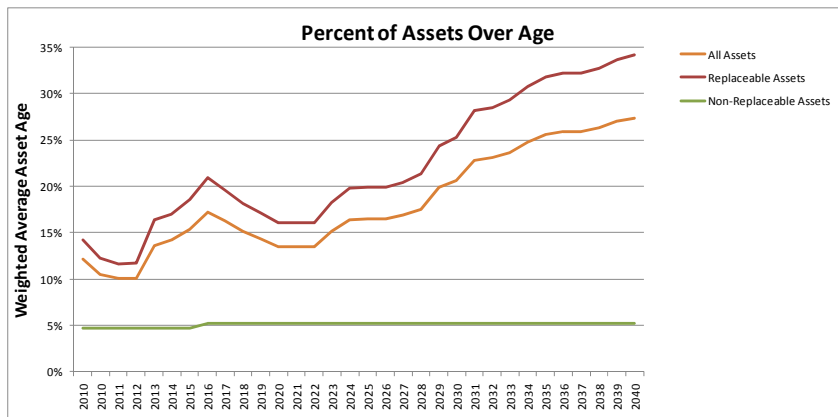
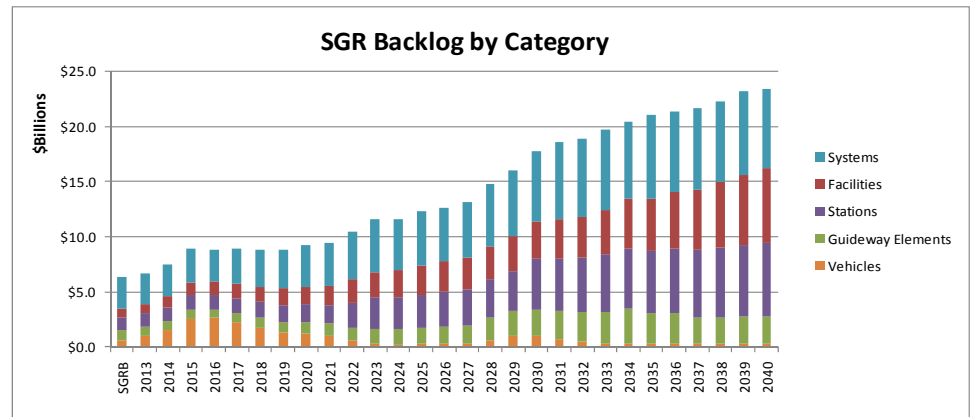
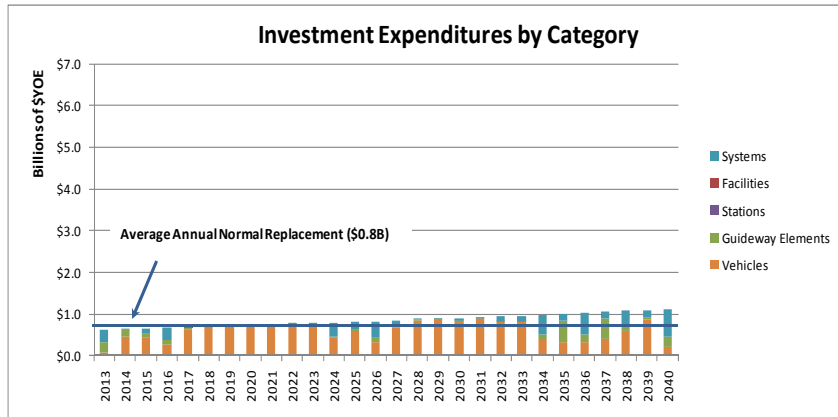
Sample Output: 10 Years to SGR (\$1.6B Avg.)



Sample Output: Maintain Backlog* (\$1.3B Avg.)

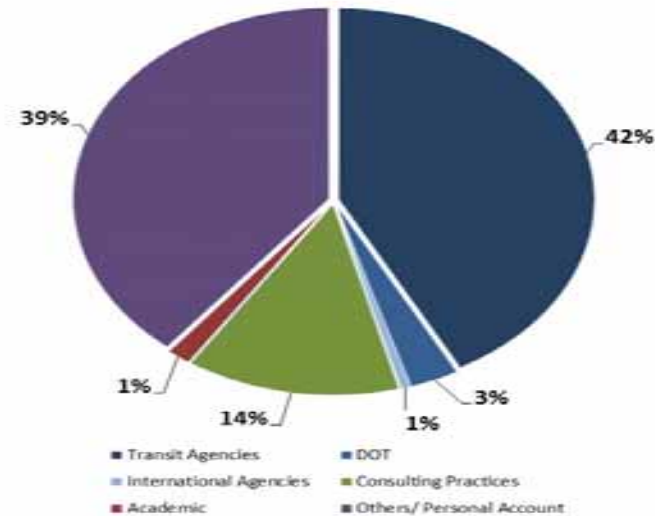


Sample Output: Historic Spending* (\$0.8B Avg.)



TERM Lite: Industry Response

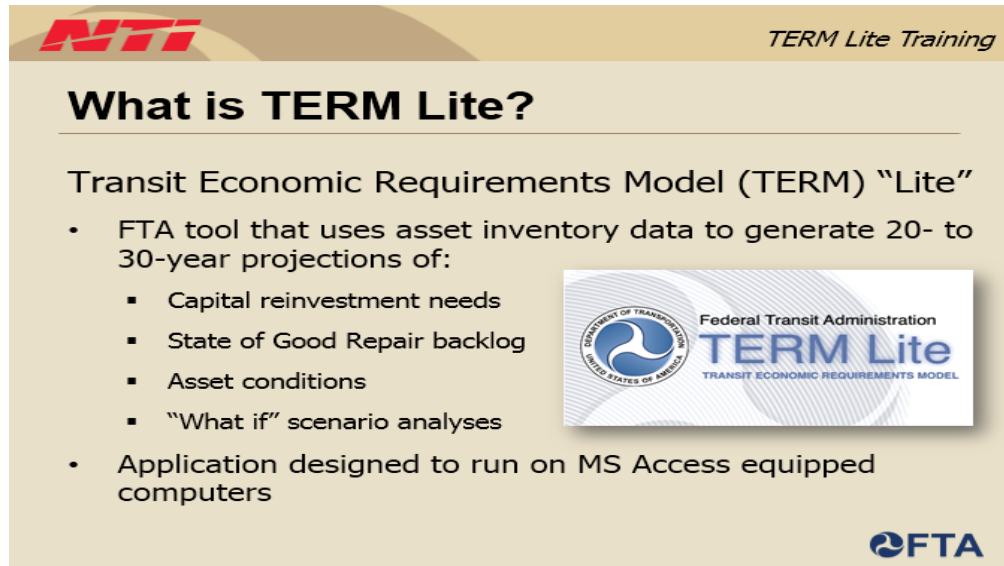
- TERM Lite went “live” on FTA website in late 2012
 - FTA has since provided update to version “2.0”
 - Notification of future updates will be provided to those who have signed up on the TERM Lite website
- To date, there have been more than 1,300 downloads of TERM Lite



Subscribers Categories	Count	Percentage
Transit Agencies	557	42%
DOT	41	3%
International Agencies	8	1%
Consulting Practices	179	14%
Academic	20	2%
Others/ Personal Account	517	39%
Total	1322	100%

NTI Course

- In 2013 FTA developed a TERM Lite Course for the National Transit Institute (NTI)
- To date course has now been delivered in seven cities to more than 40 different transit operators




NTI *TERM Lite Training*

What is TERM Lite?

Transit Economic Requirements Model (TERM) "Lite"

- FTA tool that uses asset inventory data to generate 20- to 30-year projections of:
 - Capital reinvestment needs
 - State of Good Repair backlog
 - Asset conditions
 - "What if" scenario analyses
- Application designed to run on MS Access equipped computers



FTA

TERM Federal– Data Sources - Strengths and Weaknesses

- 600 Asset Types
- 66,000 Asset Records Provided by 600 Urban and 1,300 Rural Transit Agencies

Category	Source	Periodicity	Use	Strengths / Weaknesses
Inventory Data – Fleet	NTD	Every Year	Needs analysis	<ul style="list-style-type: none"> • Reported annually • Rich in detail • No condition data
Inventory Data – Guideway, Facilities, Systems, and Stations	Transit Agency Requests	-	Needs Analysis	<ul style="list-style-type: none"> • No industry standard for storing/reporting • Labor intensive to format • Paperwork Reduction Act
Service Supplied – Miles, Hours of Service; Ridership,	NTD	Every year	Benefit Cost Analysis	<ul style="list-style-type: none"> • Reported and validated annually since 1979.
BCA Parameters – Value of Time, Auto Costs,.....	Various Sources (DOT,...)	-	Benefit Cost Analysis	<ul style="list-style-type: none"> • Benefits parameter data not updated regularly

TERM Federal – Steps to Improve Quality of Data While Minimizing Reporting Burden

- MAP-21: FTA will establish a national transit asset management system. The regulation will:
 - Define “state of good repair;”
 - Set objective standards for measuring the condition of capital assets (including equipment, rolling stock, infrastructure, and facilities); and
 - Establish performance measures for state of good repair, under which all FTA grantees will be required to set targets.
- Reporting Requirements Under MAP-21:
 - the condition of their system;
 - any change in condition since the last report;
 - targets set under the above performance measures; and
 - progress towards meeting those targets.
- **Reporting Requirements Will be Limited to Data Needed to Run TERM**

Questions?

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