2010 SGR Roundtable

TERM-Lite: Building Better Technology for the Industry's Use

Study Overview



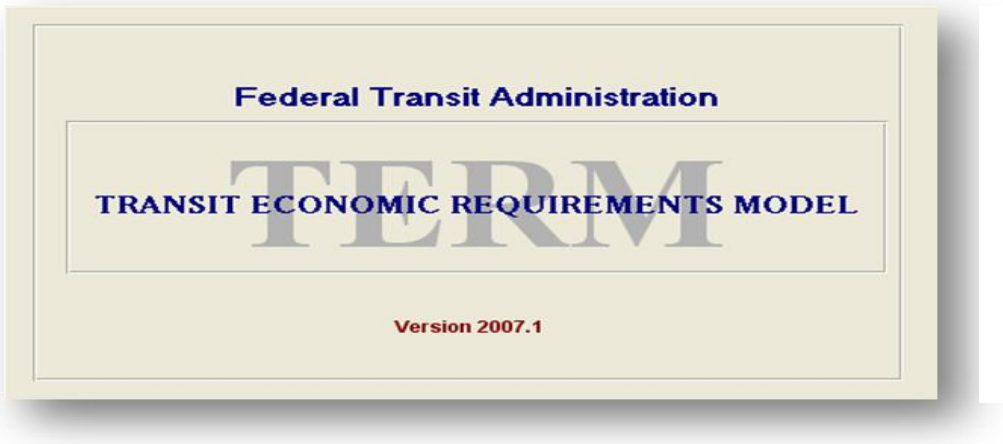

Chicago, IL
July 2010

TERM – FTA's Capital Needs Analysis Tool

- **T**ransit **E**conomic **R**equirements **M**odel
  - Developed to provide analysis for biannual Conditions & Performance Reports to Congress
  - Provides analysis of transit investment scenarios at National level
    - ✓ State of Good Repair backlogs
    - ✓ Average condition of assets by category
    - ✓ 20 to 50 year projections of capital investment needs
    - ✓ Studies of alignment between apportionment and needs
  - Extensive database of industry assets
    - ✓ Comprehensive NTD vehicle data
    - ✓ Asset lists from 40 of the largest agencies
  - $5 million invested since 1995

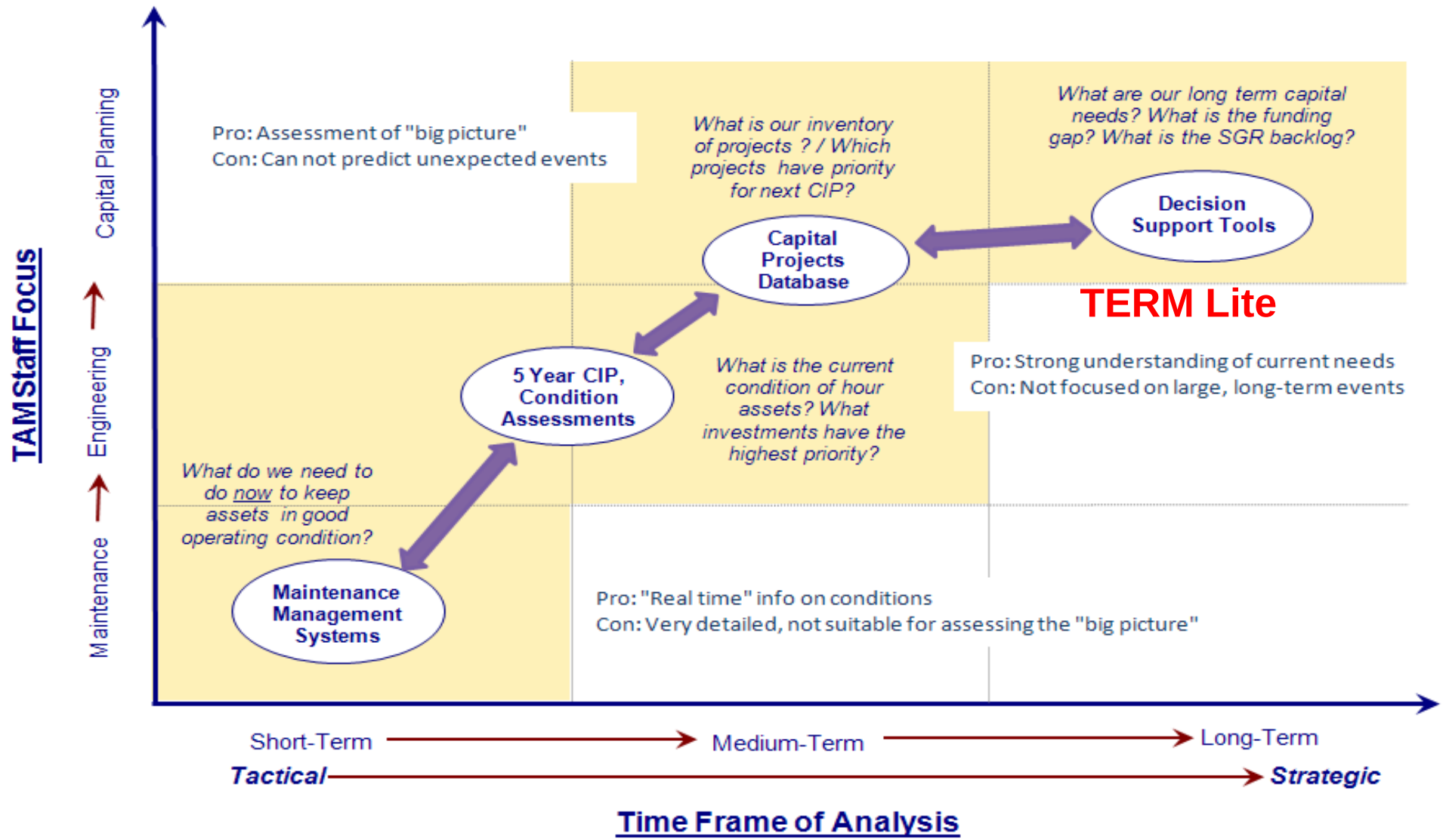
TERM – Local Investment Tool Edition (Lite)

- TERM For Agency Long Range Capital Planning
  - Accepted analysis tool for Capital Improvement Planning
  - Analysis relies on agency provided asset inventories
  - Calculates standard “state of good repair” metrics
  - Free through FTA website

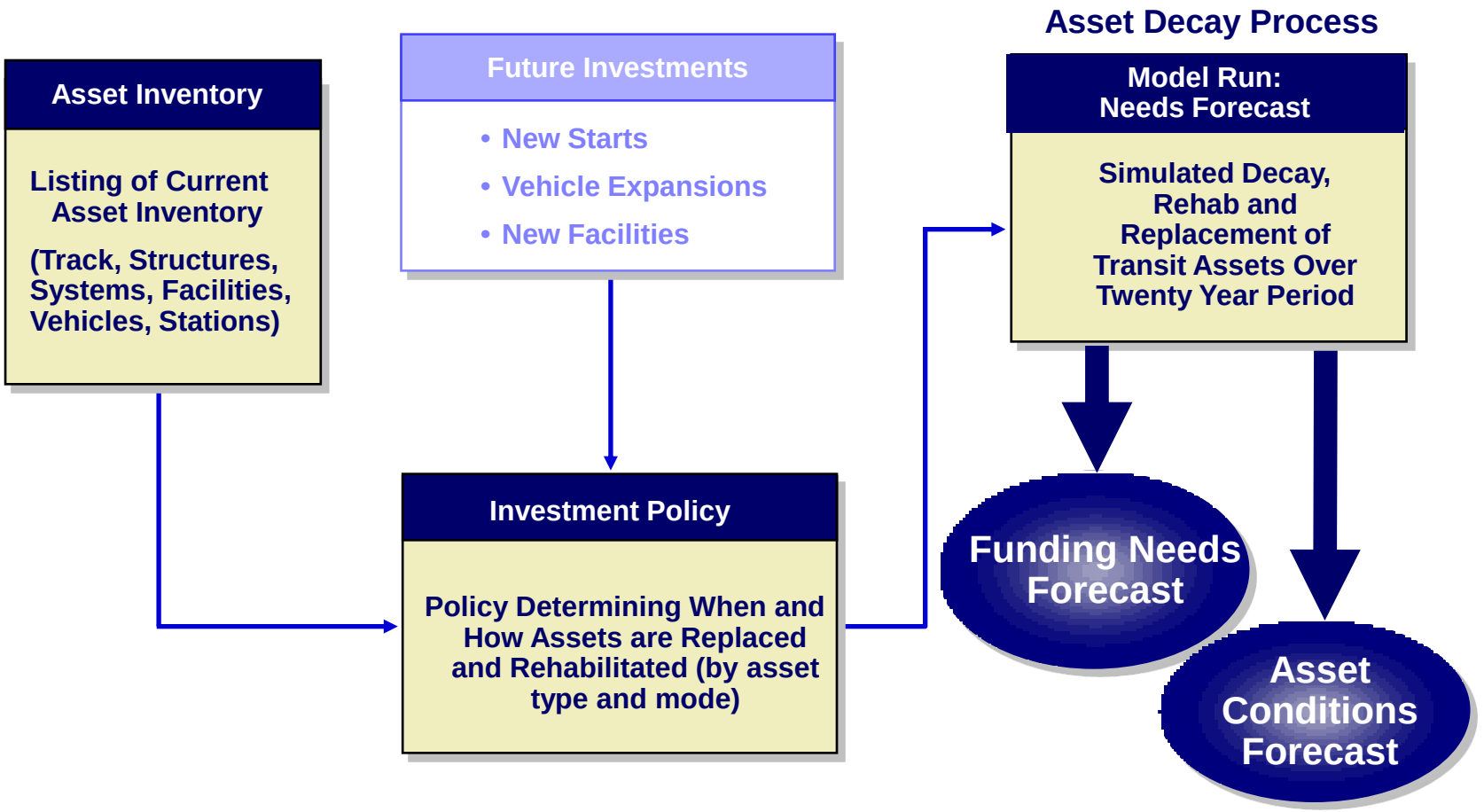


Serving suggestion only, beverage is not included and may have harmful effects if consumed during financial planning

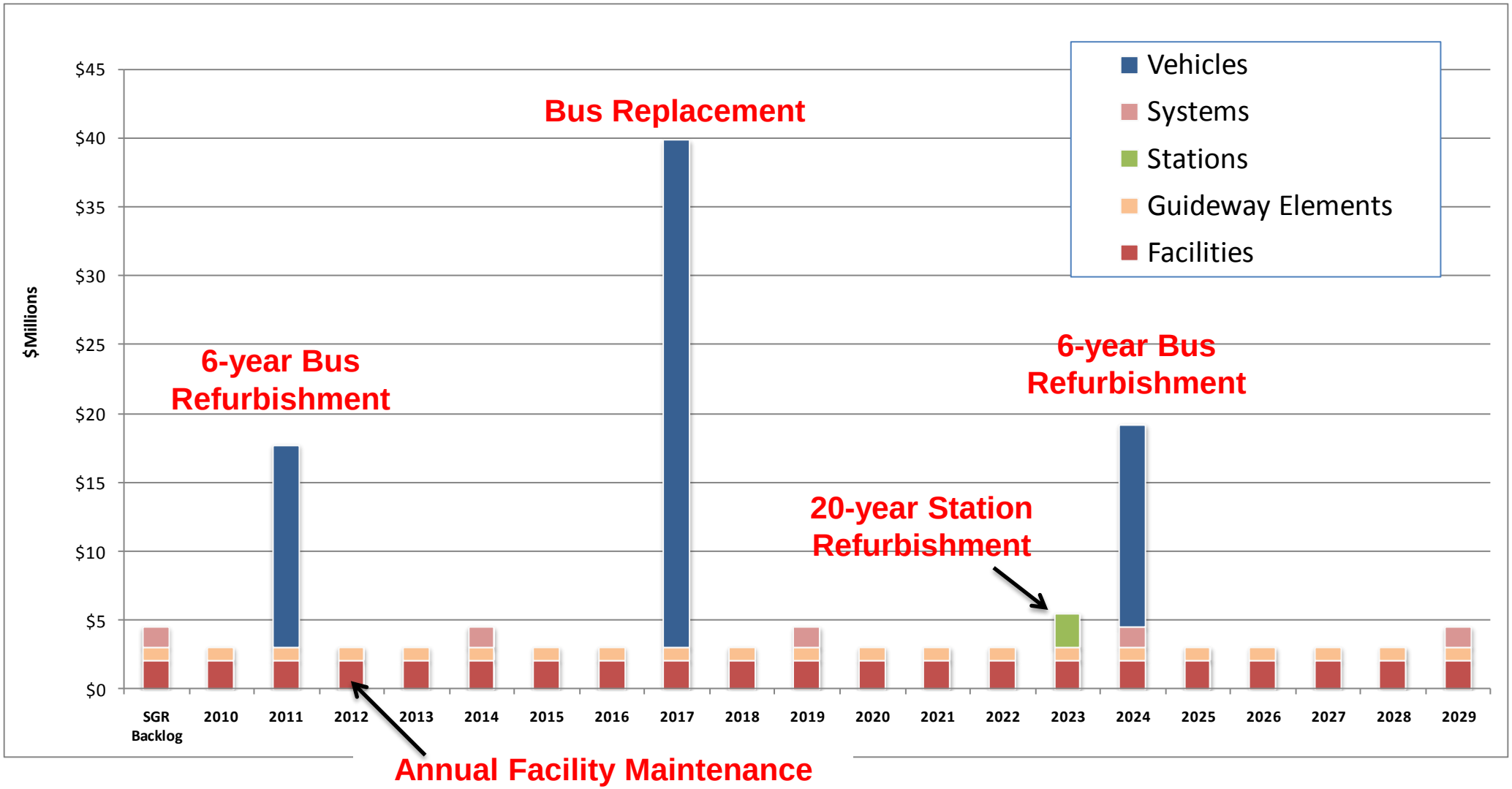
Transit State of Good Repair Continuum



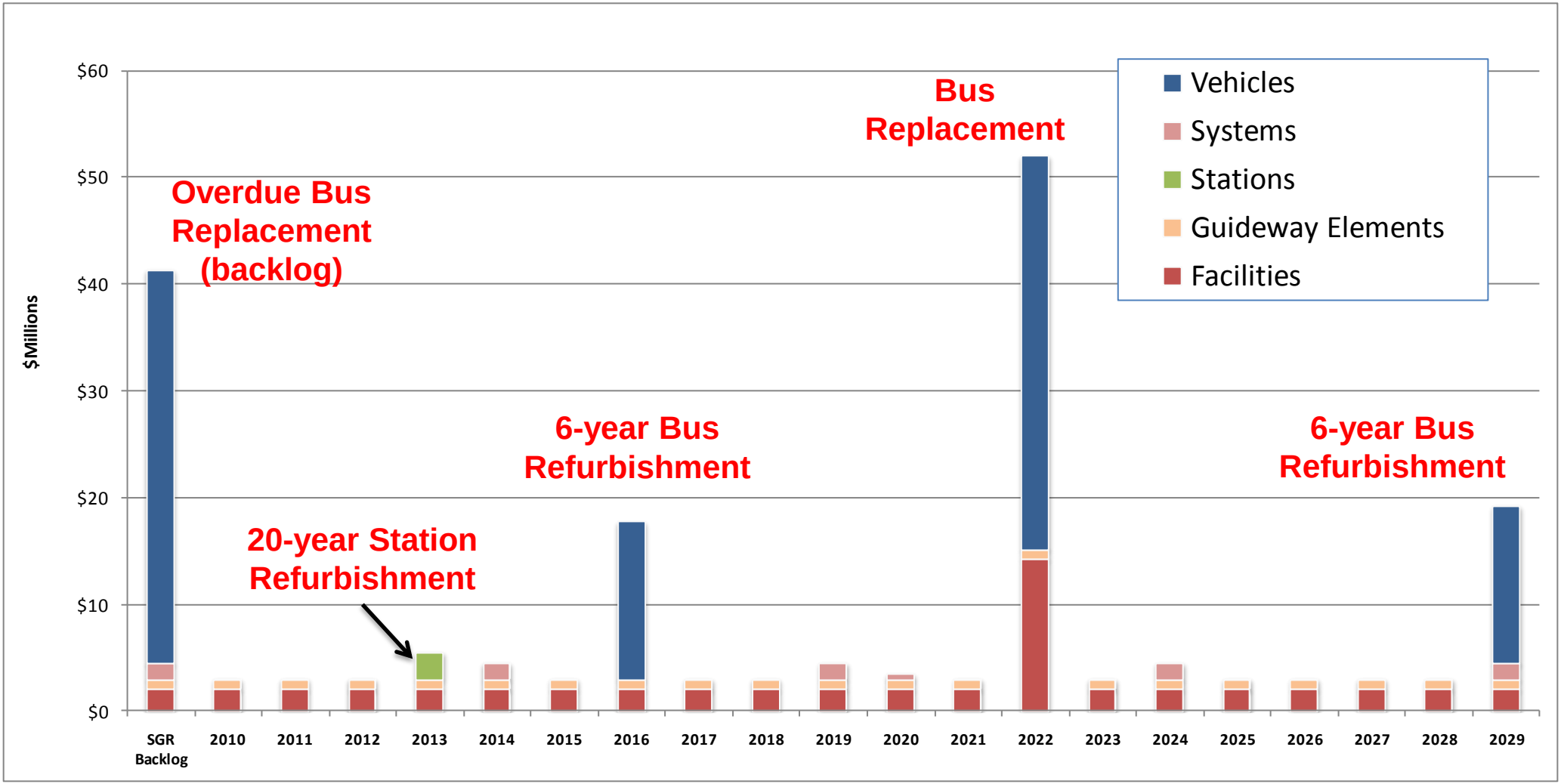
TERM Lite Overview



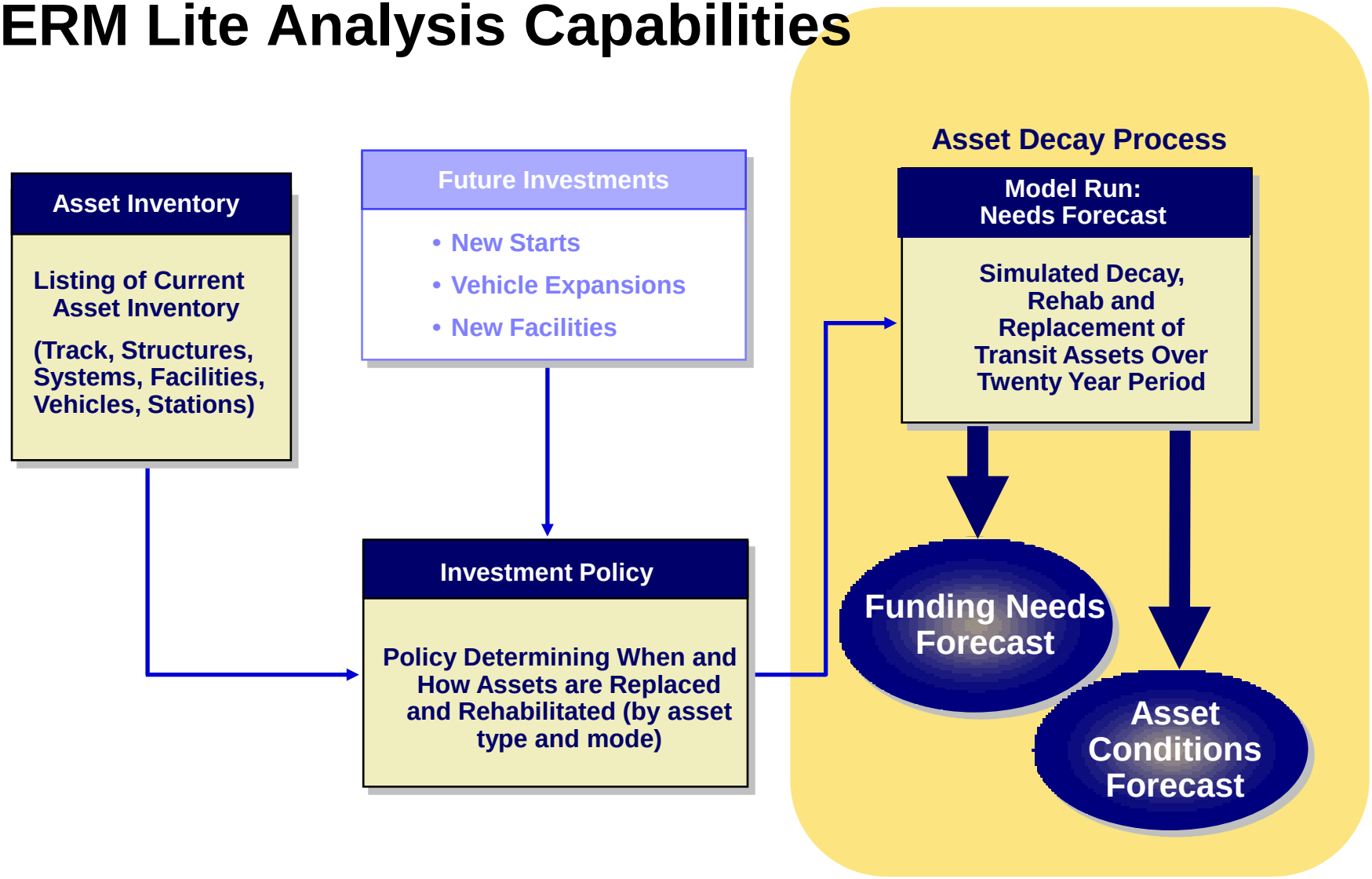
Example: New 100-Bus Agency started in 2004



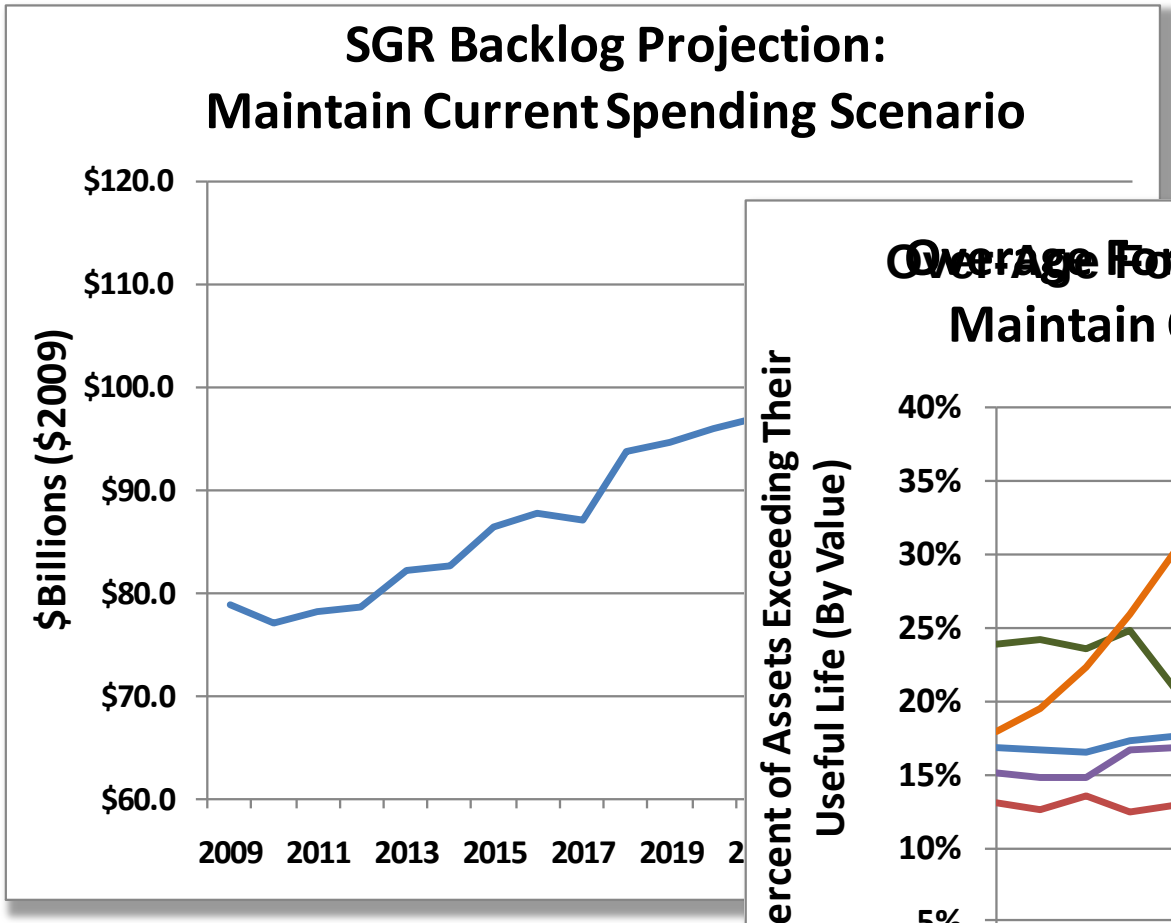
Example: New 100-Bus Agency started in 1994

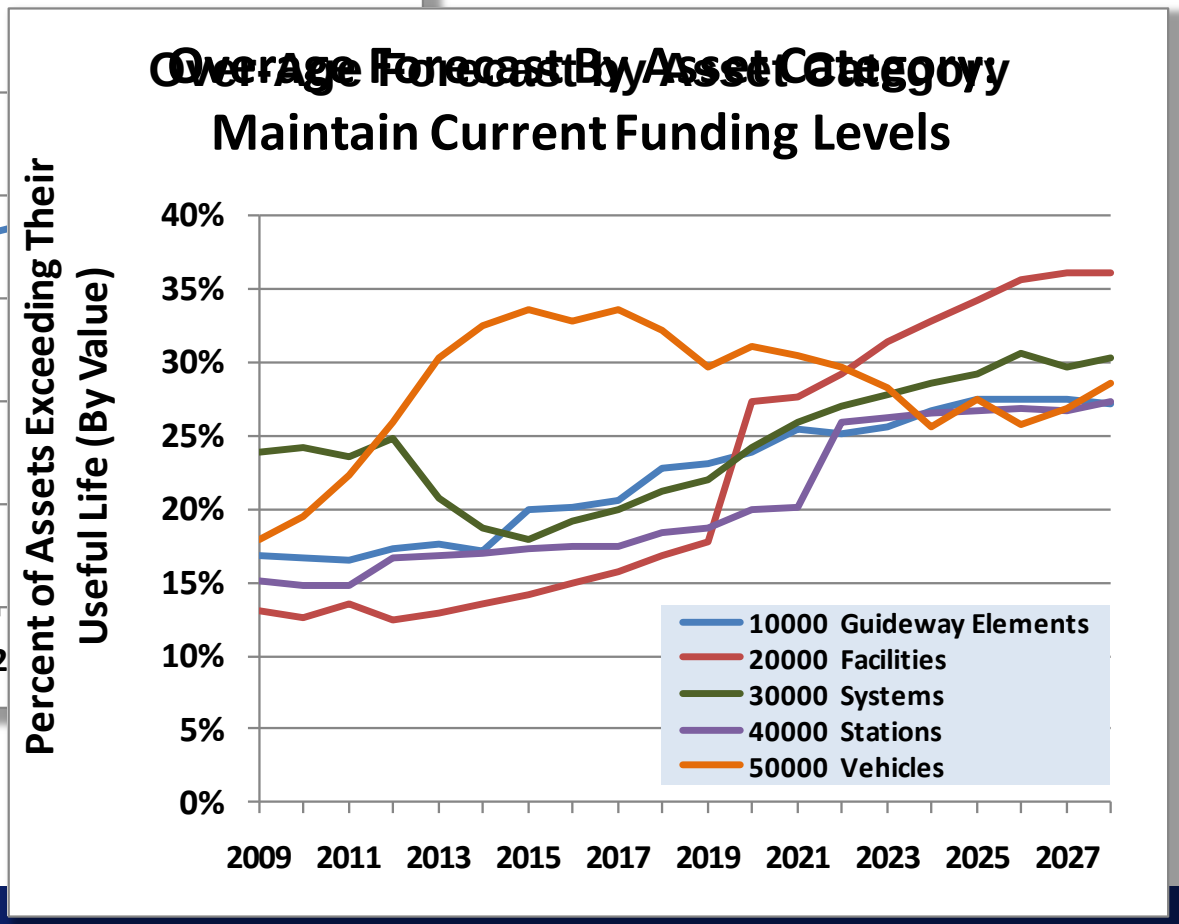


TERM Lite Analysis Capabilities

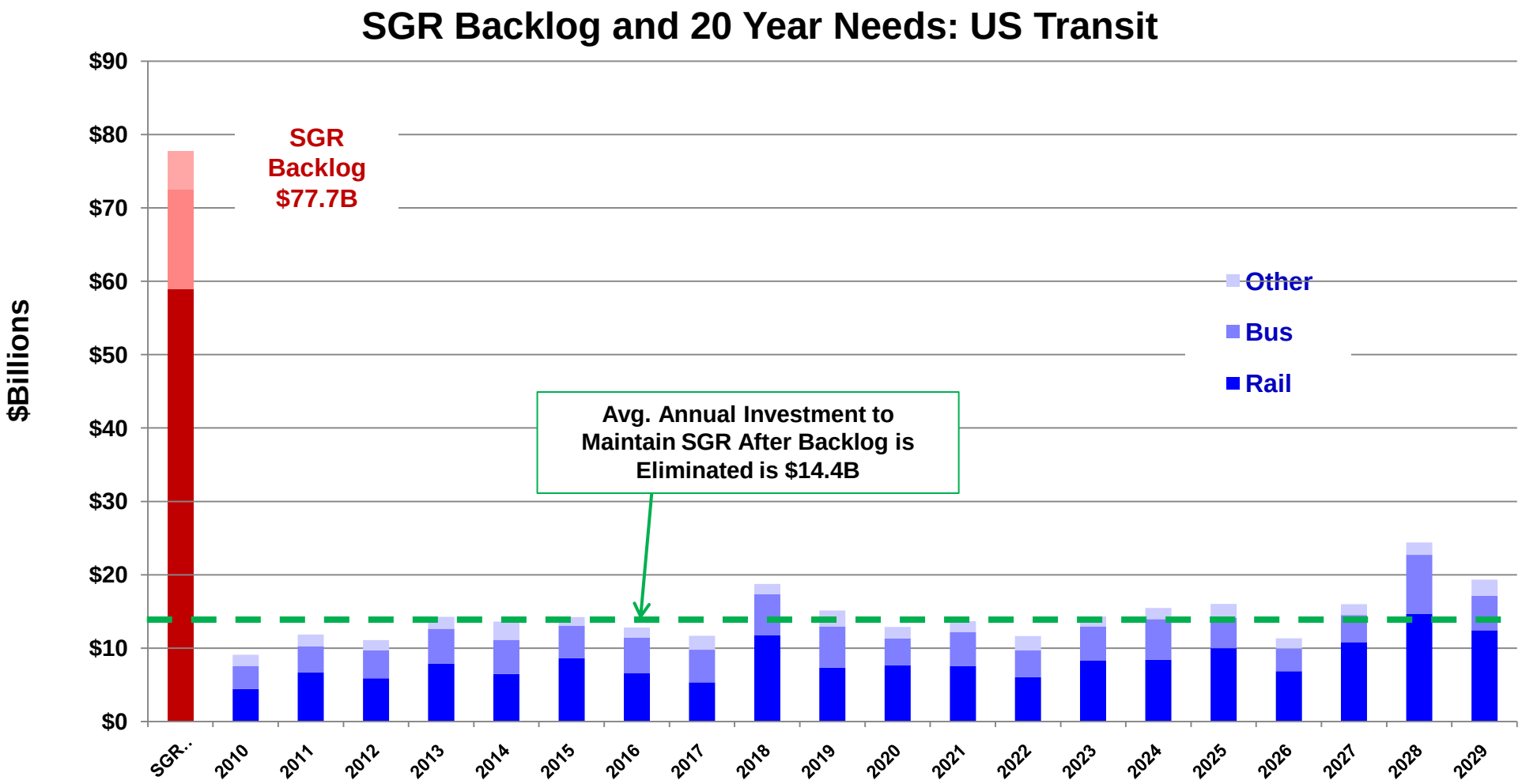


Example: Reinvestment Level Impacts



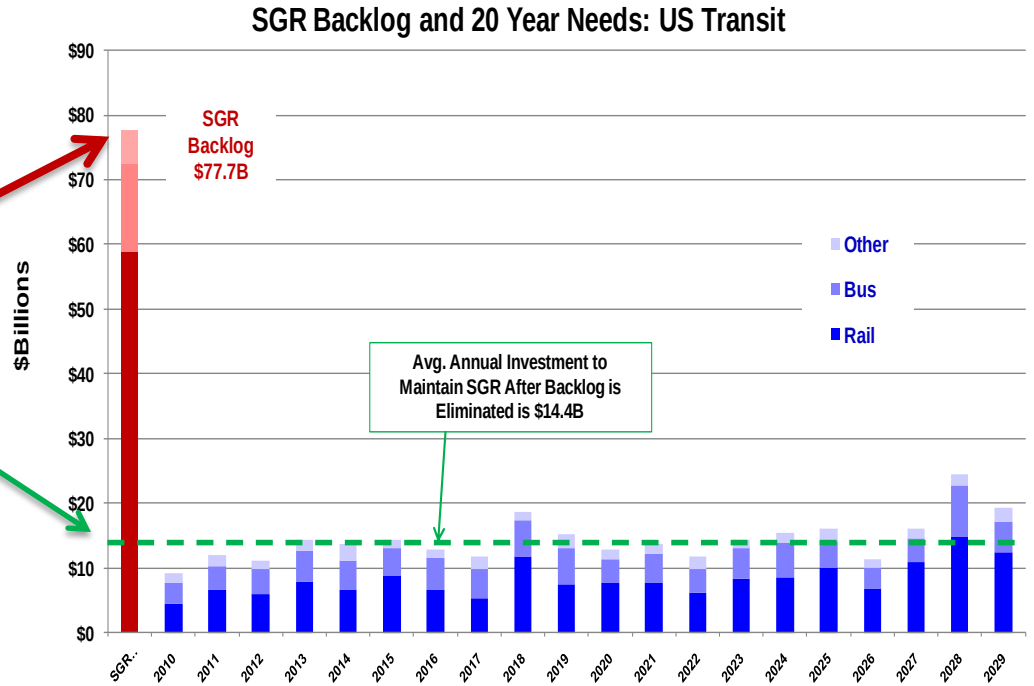


Example: Capital Reinvestment Needs Forecast



Concept of Backlog Ratio

- The absolute dollar value ($77.7B) provides a measure of the backlog
- Normal replacement ($14.4B) is measure of average reinvestment needs with no backlog
- Ratio of backlog to normal replacement provides years of backlog



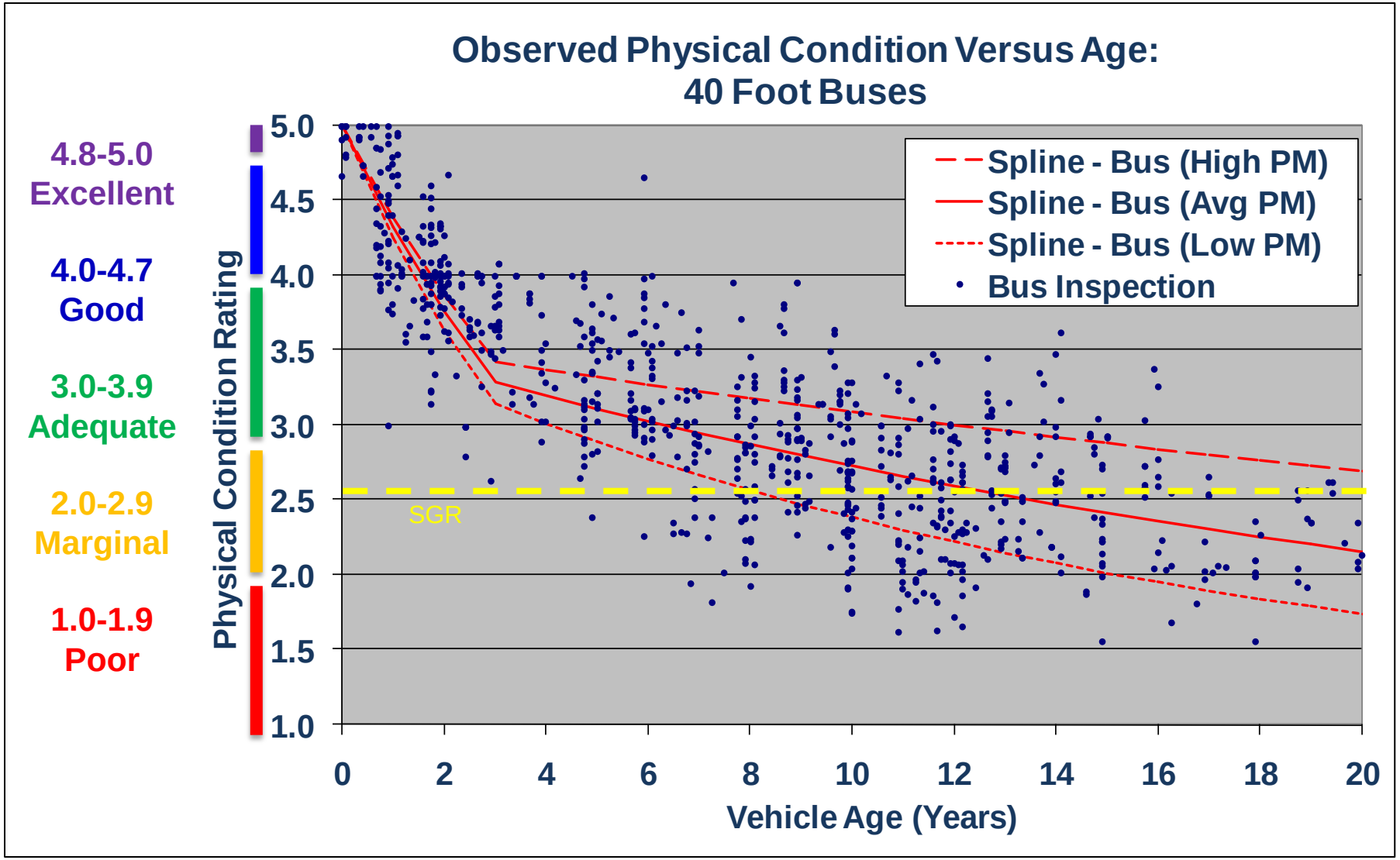
$$\text{Backlog Ratio} = \frac{\text{SGR Backlog}}{\text{Ave. Replacement}} = \frac{\$77.7\text{B}}{\$14.4\text{B}} = 5.4$$

- Measure of SGR backlog in context of normal reinvestment

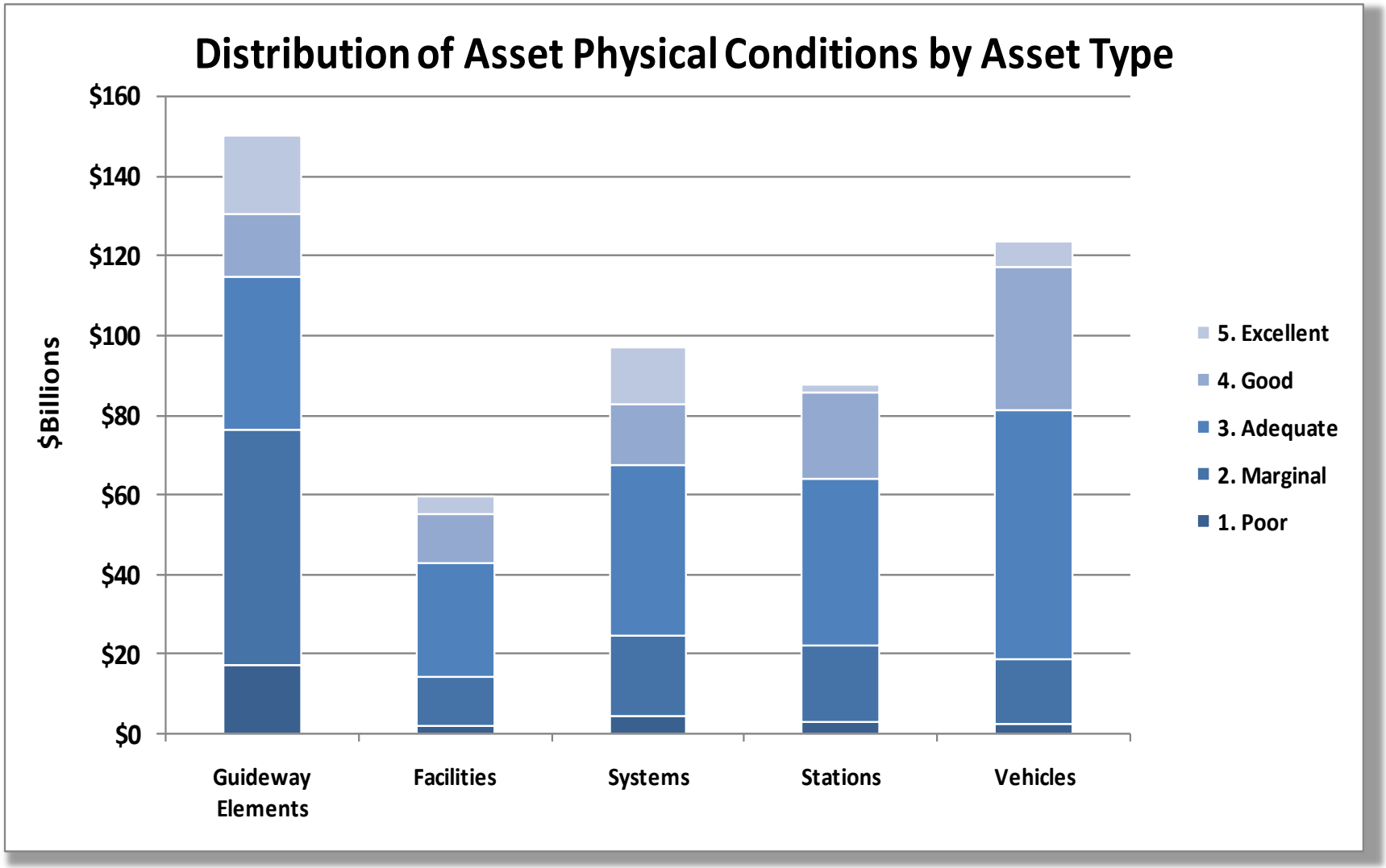
Example: SGR Backlog Ratios

- National SGR Assessment ……..... 5.4 years
  - Rail Only …… 7.2 years
  - Non-Rail Only ……..…. 3.0 years
- Big 7 Rail Mod Study Agencies …….. 8.5 years
  - Rail Only ……..... 9.4 years
  - Non-Rail Only …… 3.6 years
- National excluding Big 7 ……. 3.3 years
  - Rail Only …….. 3.9 years
  - Non-Rail Only …….. 2.9 years
- Minneapolis Metro ……..….. 0.7 years

TERM Asset Condition Scale

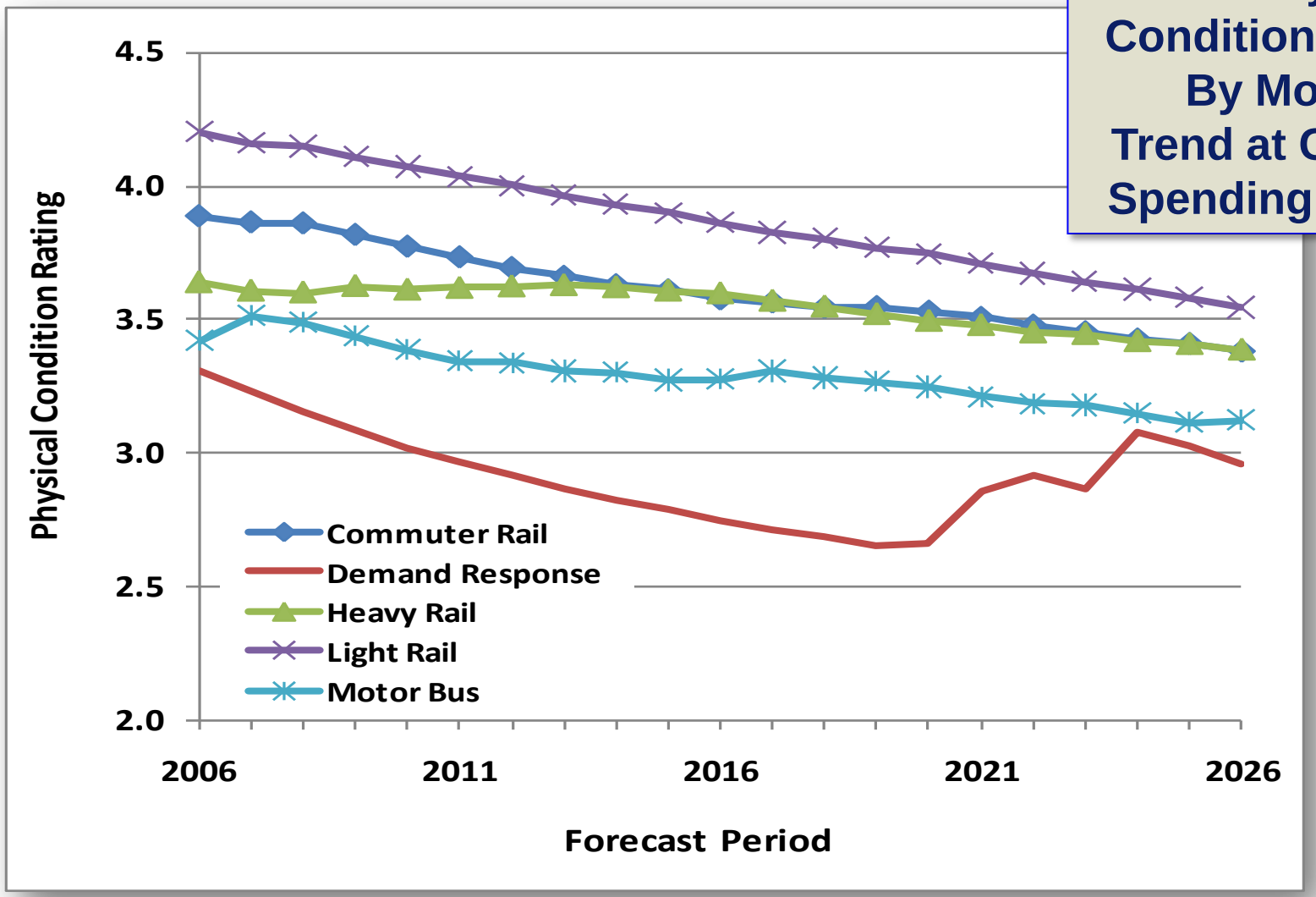


Example: Asset Condition Report

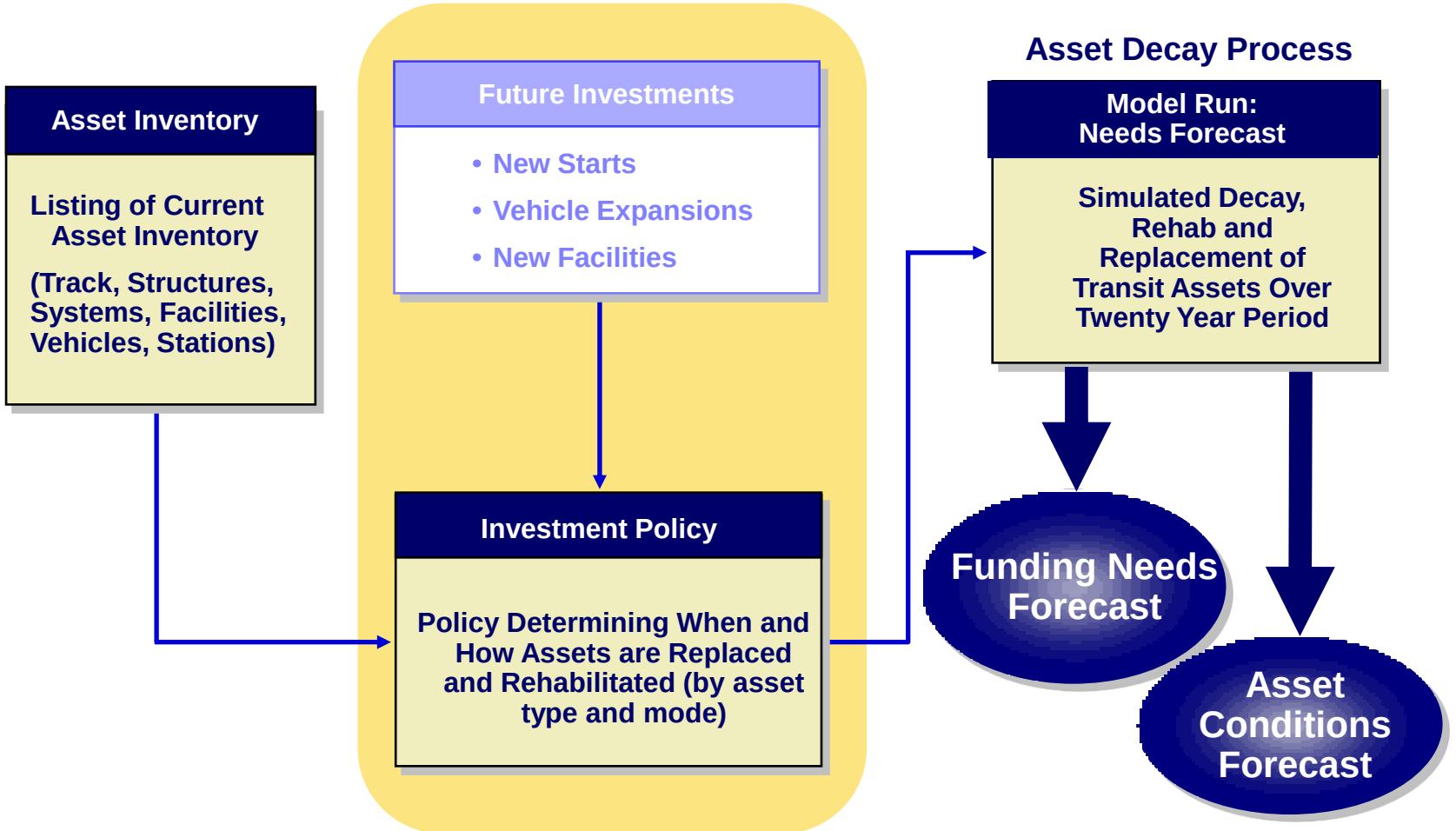


Example: Asset Condition Forecast

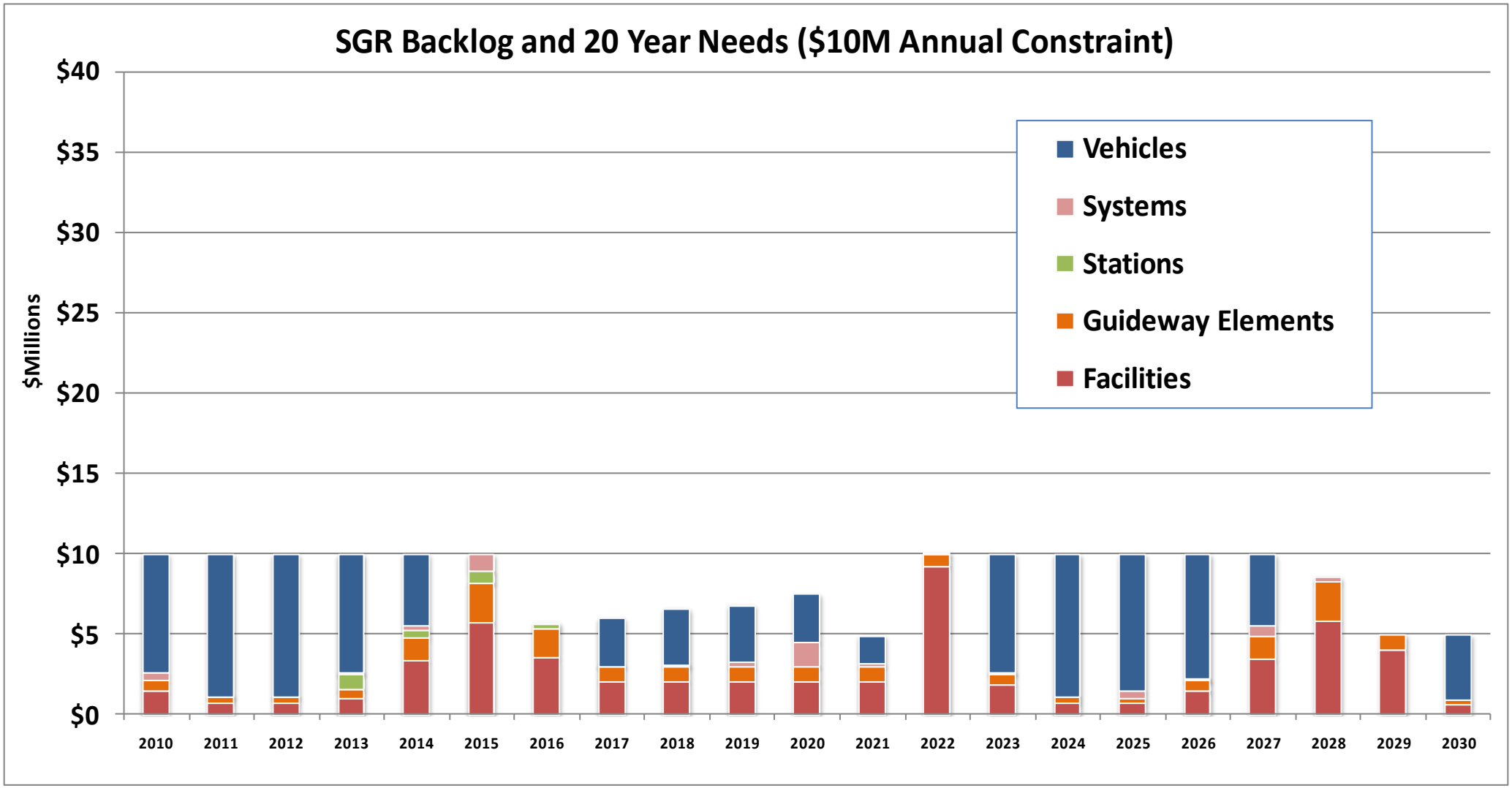
Ave. Physical Condition Rating By Mode: Trend at Current Spending Levels



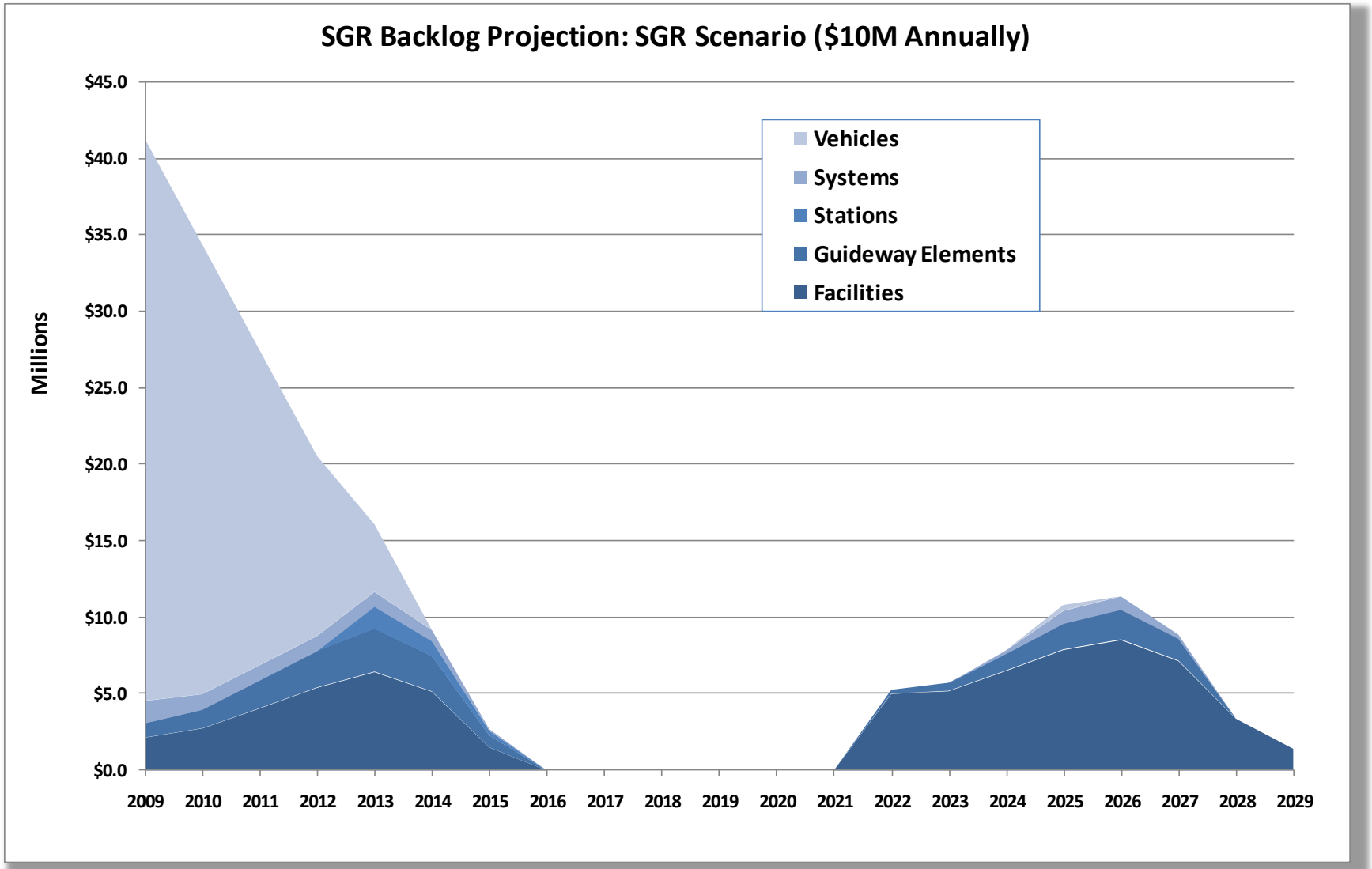
TERM Lite Investment Constraints



Example: New Bus Agency in 1994 with Constrained Budget

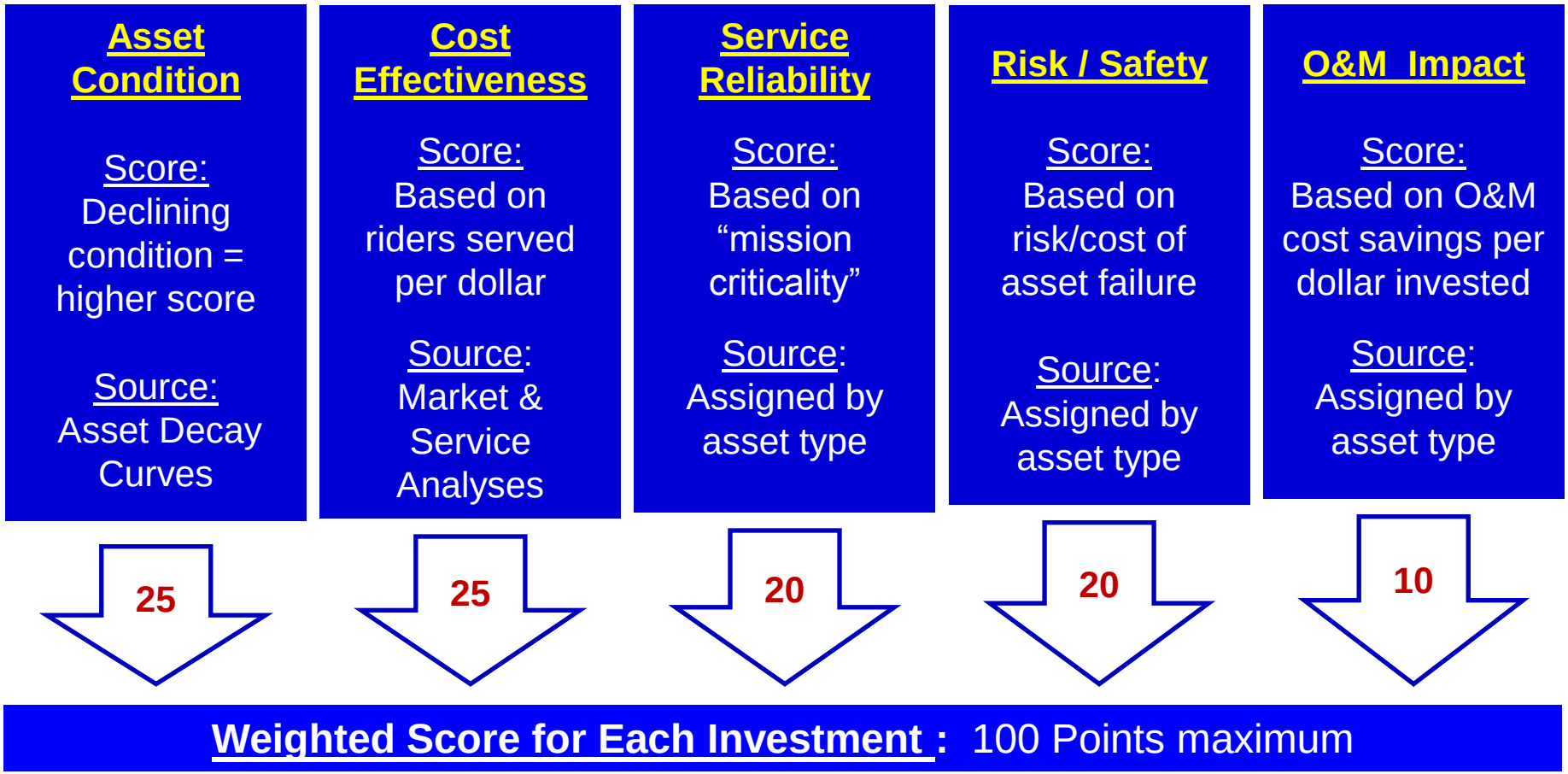


Example: New Bus Agency in 1994 - $10 Million Constraint

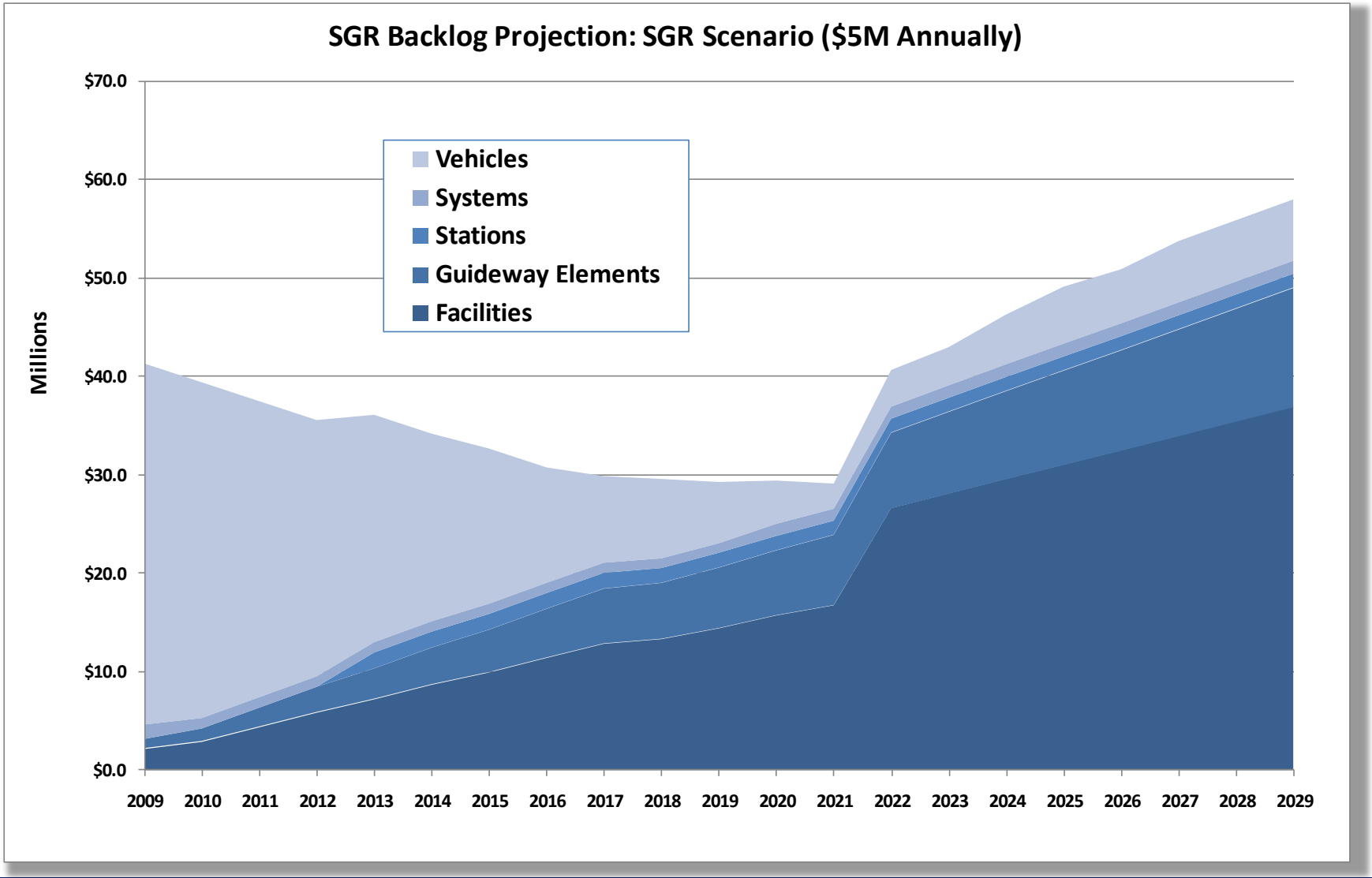


Implementing Constraints – Prioritizing Investments

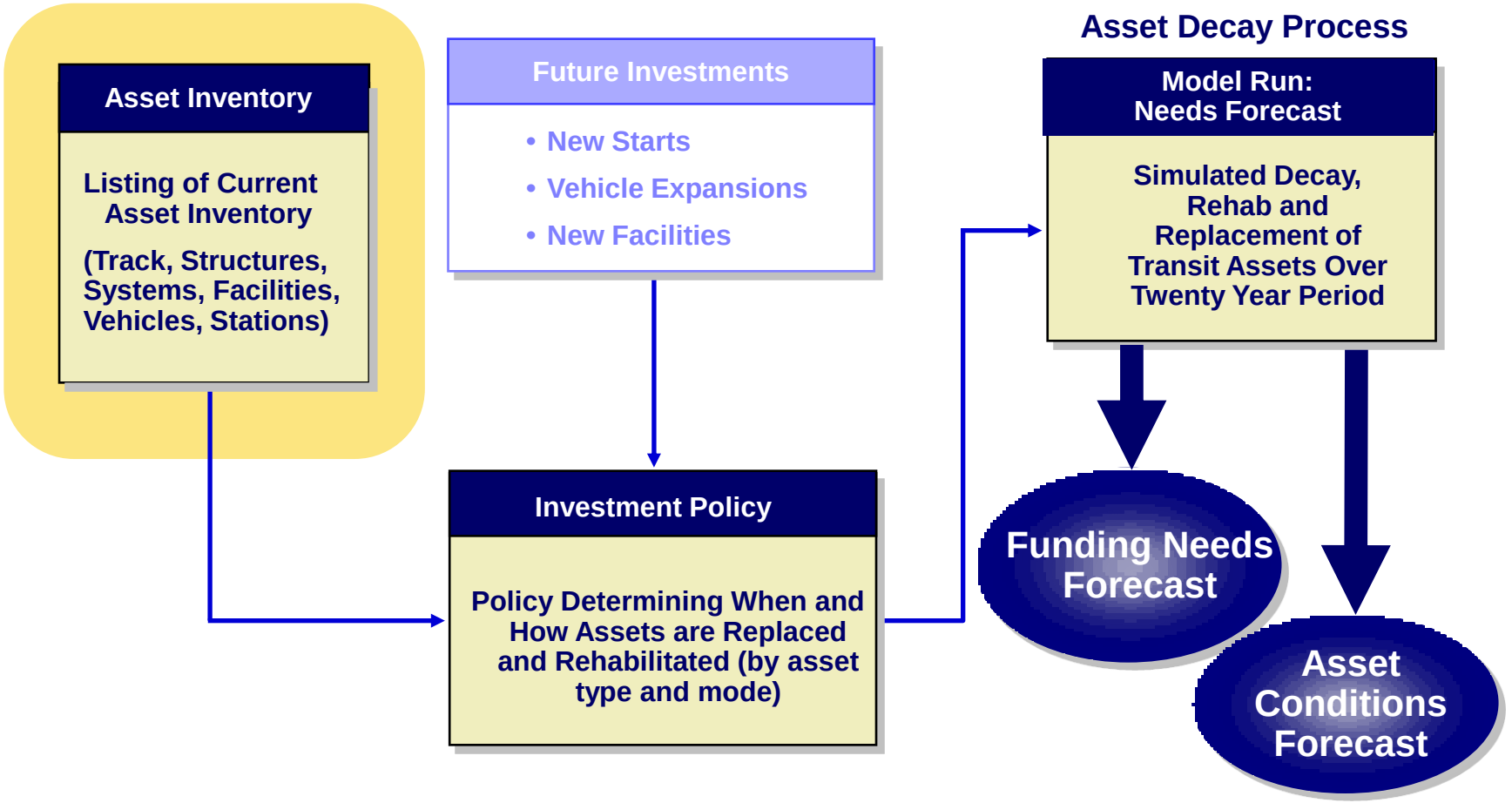
Points assigned to investments based on scoring by 5 investment criteria



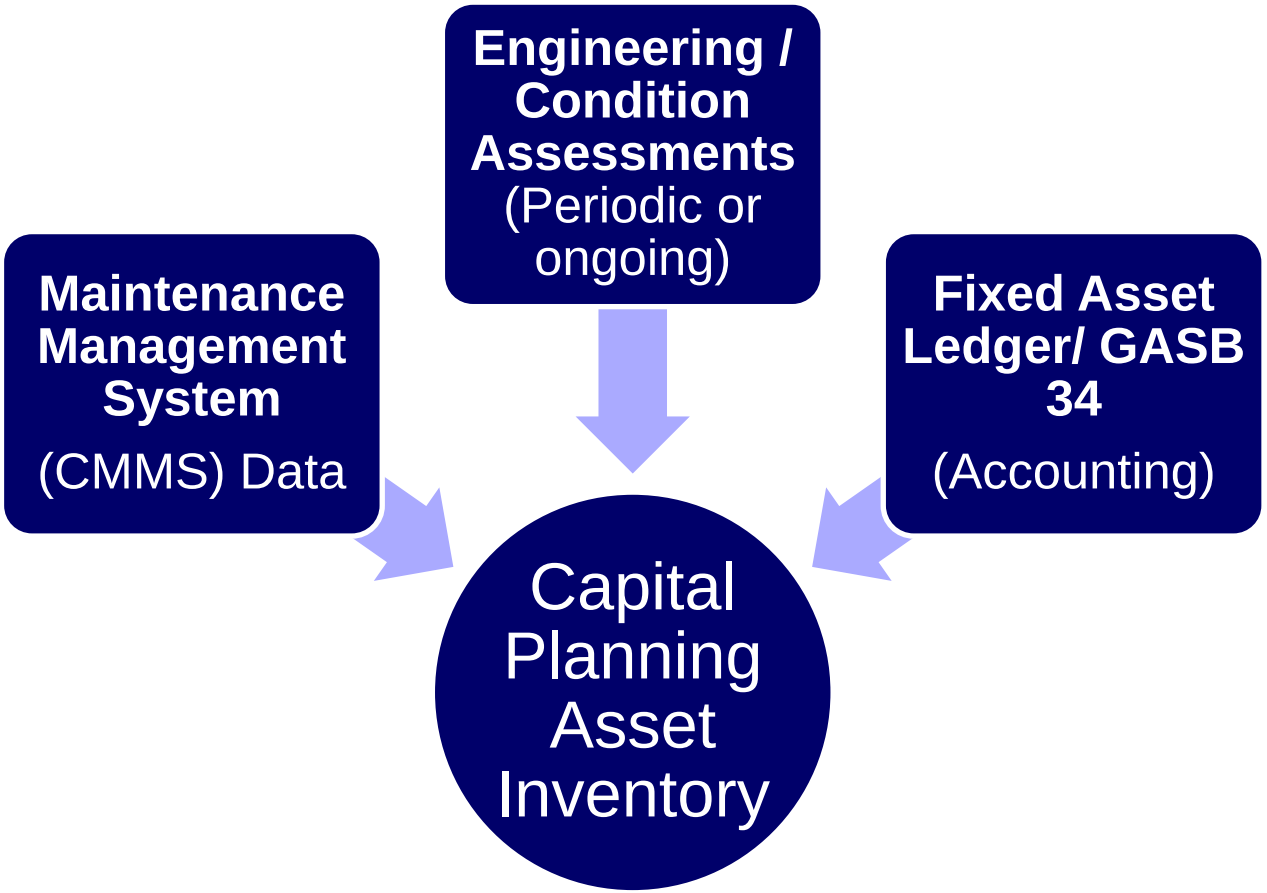
Example: New Bus Agency in 1994 - $5 Million Constraint



TERM Lite Asset Inventory Development



Asset Inventory Development



Asset Inventory Structure

- Inventory records document each asset's type, acquisition date, replacement cost, quantity, owner agency and mode
- Inventory uses a hierarchical structure with roughly 400 asset types

Category	Sub-Category	Element
Guideway Elements	Guideway	At Grade
		Elevated Structure
		Elevated Fill
		Underground
		Retained Cut
	Trackwork	Direct Fixation
		Ballasted
		Embedded
		Special
		Yard
	Special Structures	Bridges
	Bus Guideway	Dedicated Lanes
		Turnarounds
		Elevated Structure
		Subway
Facilities	Buildings	Administration
		Maintenance
		Passenger
		Terminals
	Storage Yard	Rail
		Bus
	Equipment	Computers/Software
		Furniture
		Maintenance
	Major Shops	Rail
		Bus
Systems	Train Control	Wayside Train Control
		Automated Train Control
		Centralized Train Control
		Roadway Crossings
		Interlockings
	Electrification	Catenary
		Substations
		Breaker House
		Contact Rail
	Communications	PA Systems
		Radio
		Base Radio Stations
		Mobile Radios
	Revenue Collection	In-Station
		On-Vehicle
		Central Revenue Collection
Stations	Building	At-Grade
		Eevated
		Subway
		Elevators
		Escalators
	Parking	
	Pedestrian Walkway	
Vehicles	Non-Revenue Vehicles	

Example: Inventory Hierarchical Structure