

# Retirement Stakeholder Solutions Working Group Actuarial Assumptions and Methods

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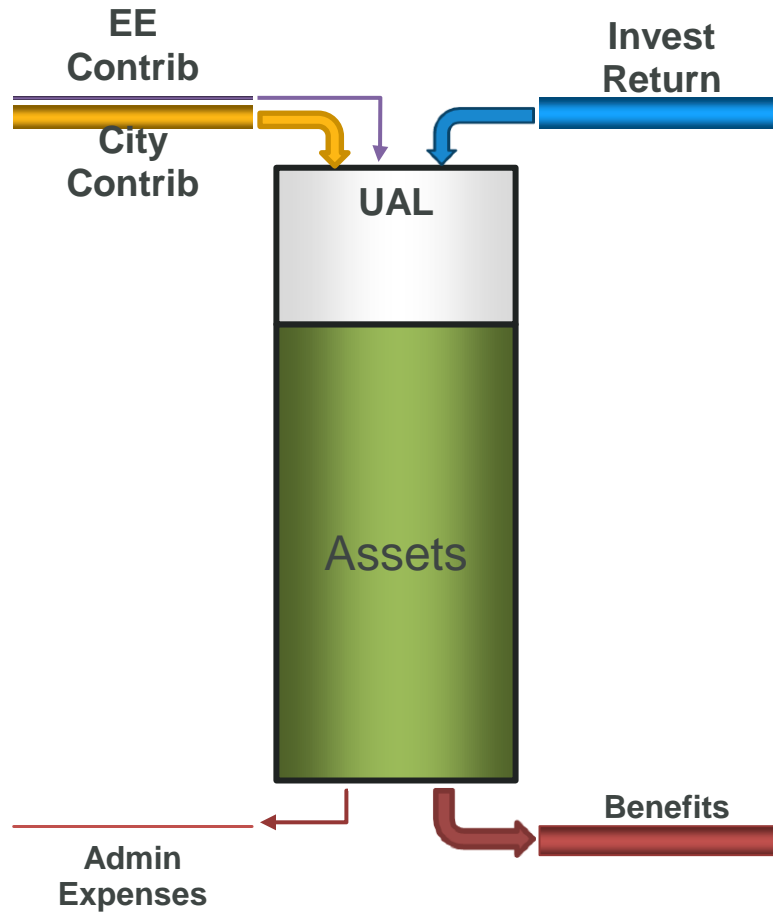


- Pension Funding Overview
- Assumptions
- Amortization Methods
- Additional Contributions

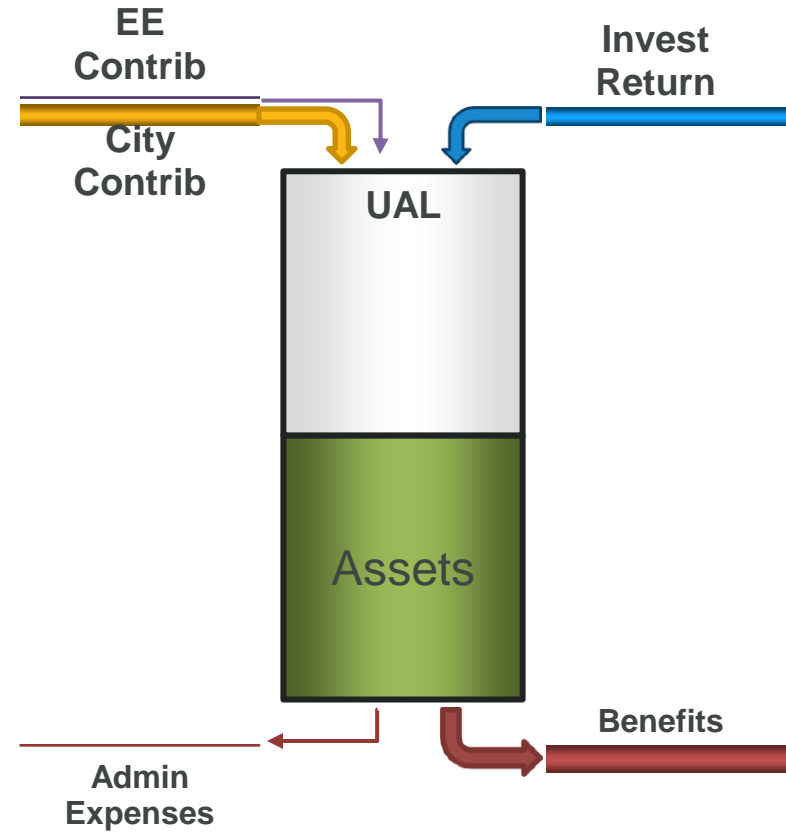
# A Dynamic System



## Police & Fire



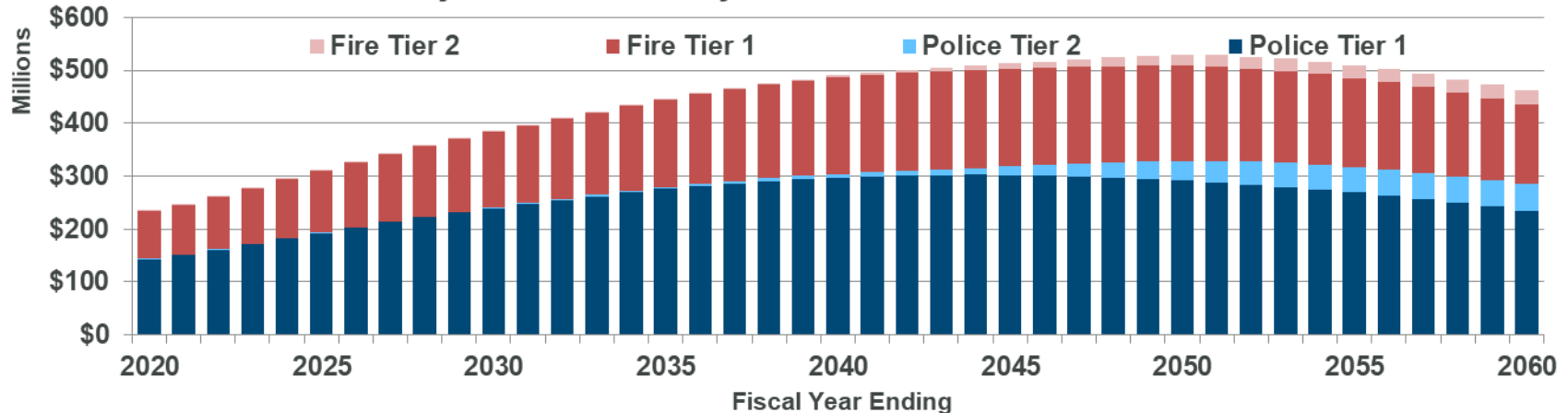
## Federated



# Projecting Benefit Payments



Projected Benefit Payments for Current Members



- Retirees

- Benefit amount
- Annual COLA
- How long will payments be made?

- Active Employees

- Projected benefit amount
  - Salary
  - Service
- When do benefits commence?
  - Retirement, termination, death, disability
- Rest is same as retiree



- Objective
  - Accumulate assets during an employee's working career to pay the employee's retirement benefits
- Funding Target = Actuarial Liability
  - Amount of assets **expected** to be needed today to pay benefits attributed to past service
- Funding Target – Assets = Unfunded Actuarial Liability (UAL)

# Impact of Assumptions

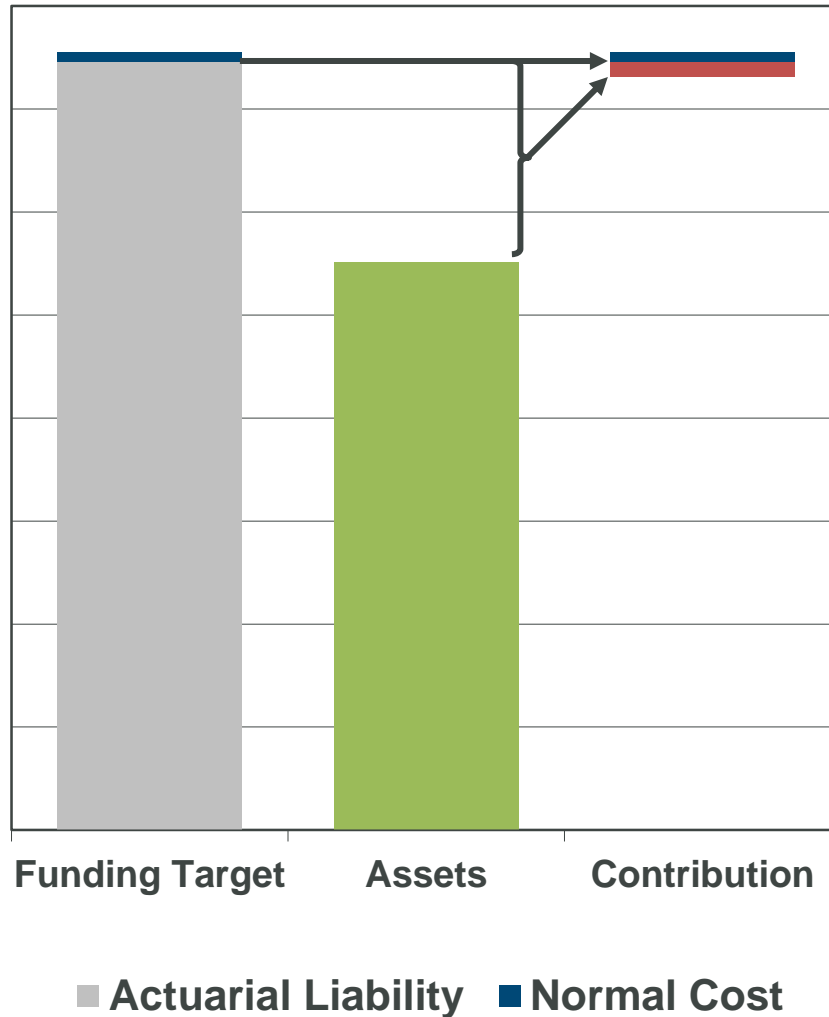


- Assumptions set **expectations**
  - Don't affect the actual benefits paid or how long they are paid
  - Don't affect actual market returns
- Differences between actual experience and assumed experience are paid over time
- Higher expected return  
→  
Lower Funding Target

## How Much Does a Plan Need Today to Pay \$500 Million in 10 or 20 Years?

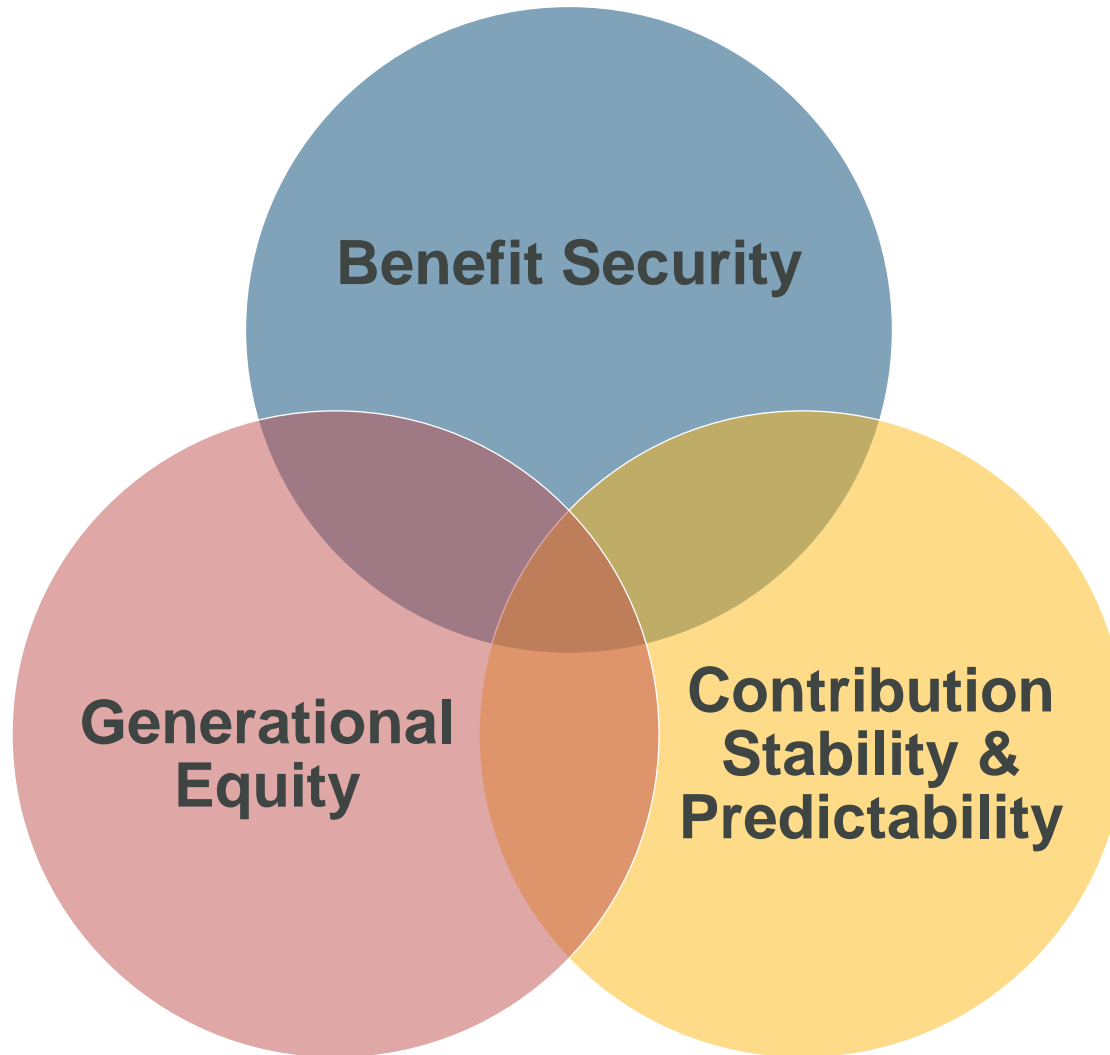
Expected Return on Assets	Funding Target	
	10 Years	20 Years
10%	\$ 192.8	\$ 74.3
8%	\$ 231.6	\$ 107.3
7%	\$ 254.2	\$ 129.2
6%	\$ 279.2	\$ 155.9
3%	\$ 372.0	\$ 276.8

# Contribution Policy Components



- Normal Cost
  - The value of active member benefits attributed to the current year of service
  - Designed to be level percentage of payroll
- Amortization payment on Unfunded Actuarial Liability
  - Difference between funding target and assets is paid over a period of time

# Balancing Competing Objectives







- Key parameters
  - Length of amortization period
  - Payment growth rate
  - Type of amortization



- Amortization Period
  - Too short of a period → Volatile contributions
  - Too long of a period → May never reach funding target or may have lengthy period of negative amortization
- Amortization Payment Increase Rate
  - Level percent of payroll
  - Level dollar amount
  - Other rates between these ends of the spectrum
    - Expected rate of growth in sponsor's revenue
    - Expected inflation

# Amortization Methods



## Interactive Amortizations

Set Comparison

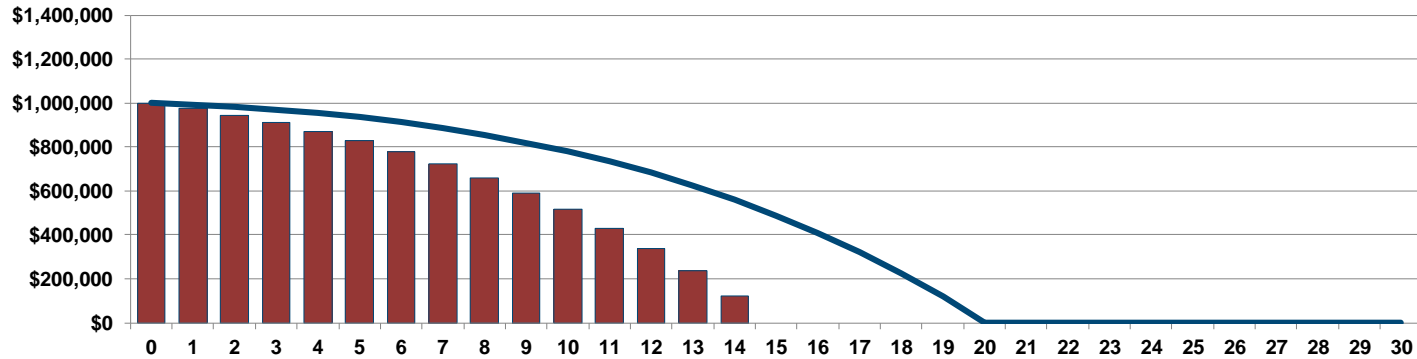
Current = Bars on Chart

Comparison = Lines on Chart

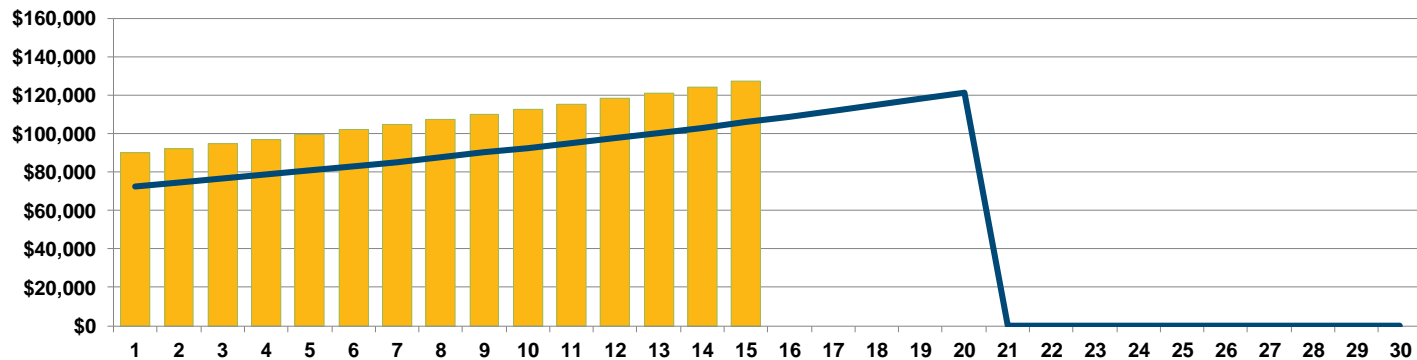
Interest Rate	6.75%	Period	15
Payment Growth Rate	2.50%	Open or Closed	Closed

Interest Rate	6.75%	Period	20
Payment Growth Rate	2.75%	Open or Closed	Closed

### Remaining Balance



### Amortization Payment



# Types of Amortizations



- Open
  - Amortization period is reset every year
  - Typically used for entire UAL
  - **Federated used this type until 2009**
- Closed
  - Amortization period declines by one each year
  - Typically used for entire UAL, but is usually reset when the period gets too short
  - **Police & Fire used this type from 1977 until 2005**
- Layered
  - Separate closed amortizations for each year
  - May also be separate amortizations for
    - Gains/losses
    - Assumption changes
    - Benefit changes

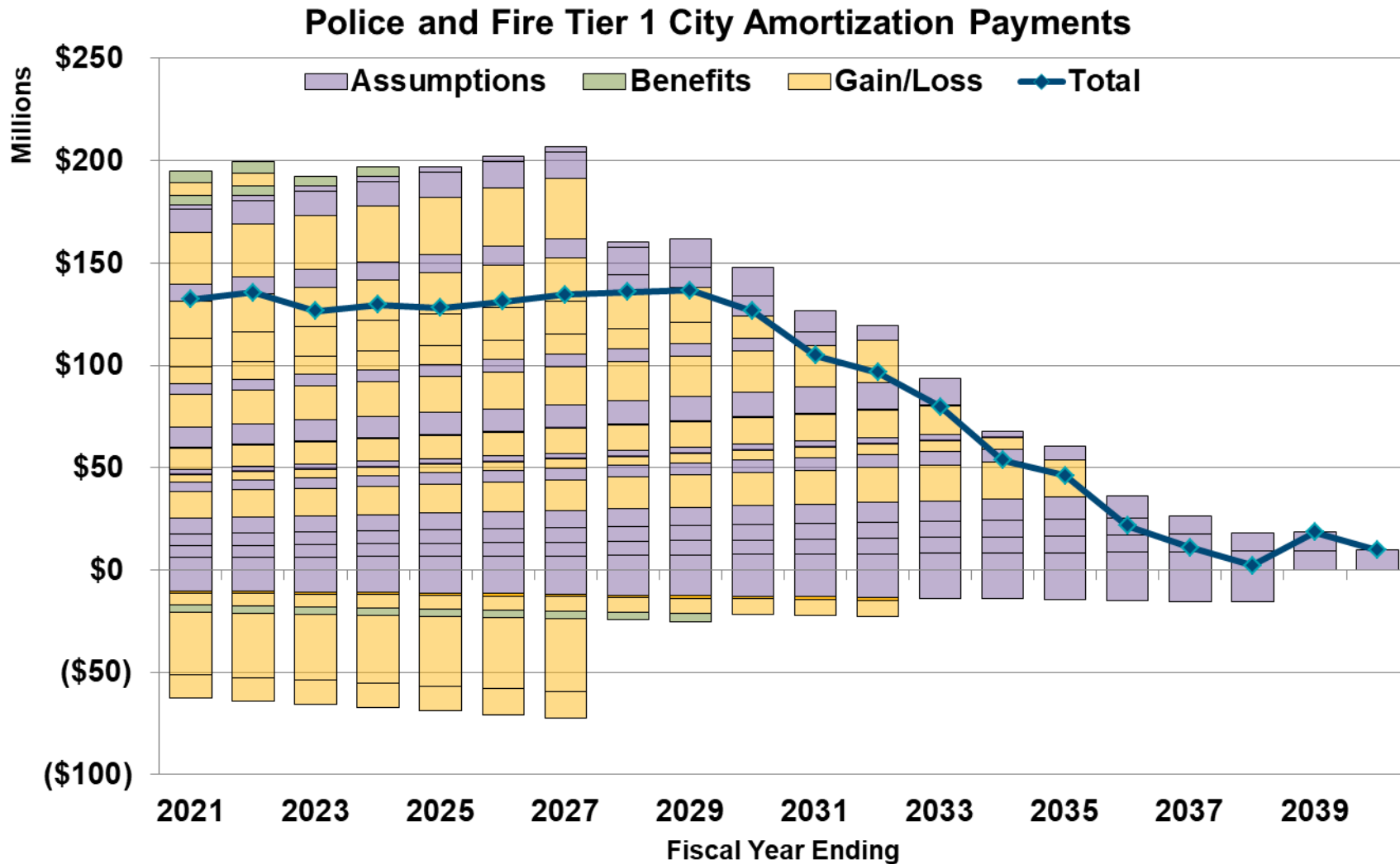
# Model Amortization Practices



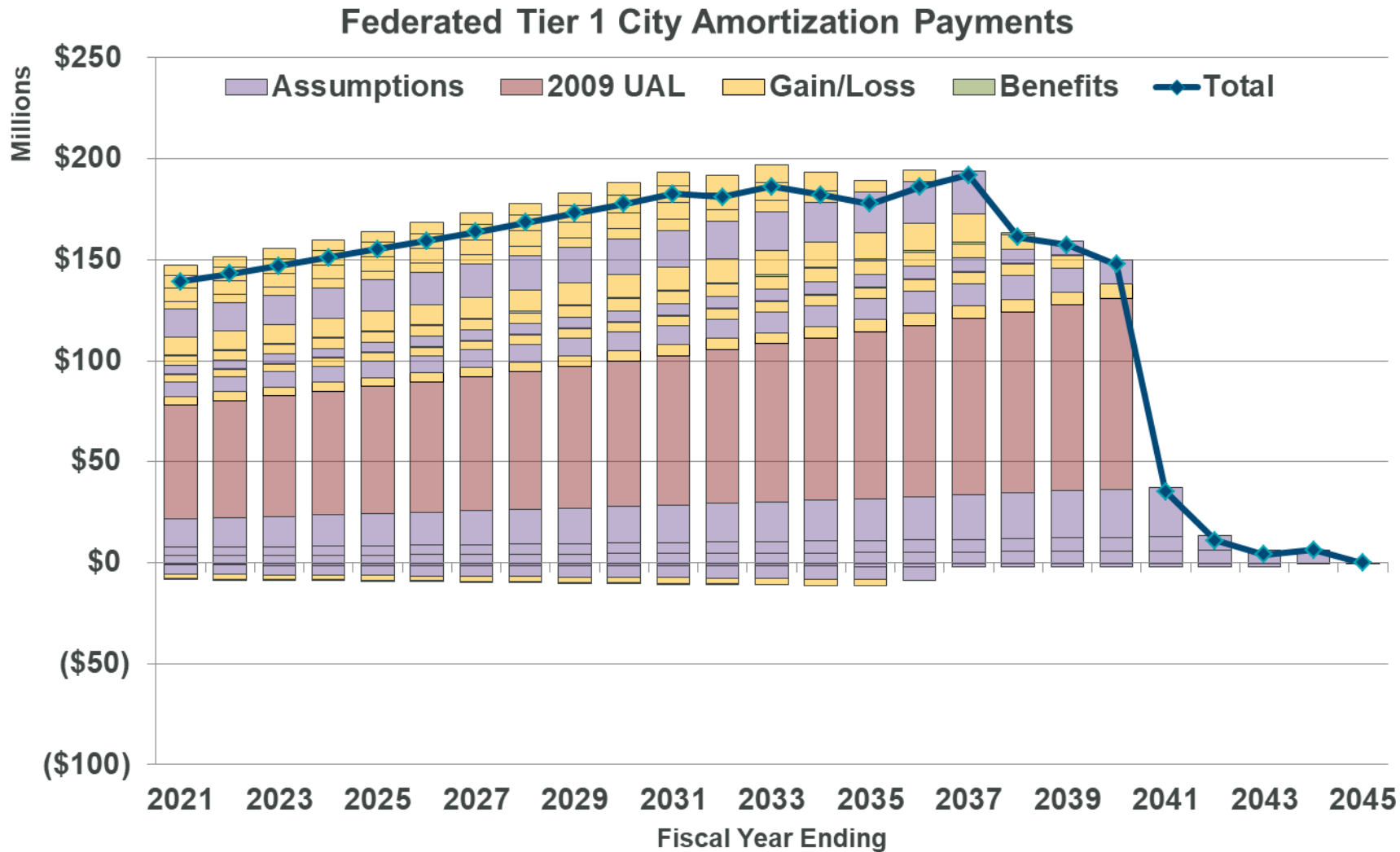
- Layered fixed period amortization
  - Both San José plans use layered amortization
- Level percent of payroll growth rate
  - Both San José plans use a growth rate lower than expected payroll growth (2.75% Federated, 2.5% Police & Fire)
  - Considered appropriate for plans that want a measure of conservatism against low future payroll growth
- Amortization periods by source in table below

Source	Model Period	Federated	Police & Fire
Experience Gain/Loss	15 to 20 years	Tier 1 = 20 Tier 2 = 10	Tier 1 = 15 Tier 2 = 15
Assumption Changes	15 to 25 Years	Tier 1 = 25 Tier 2 = 10	Tier 1 = 20 Tier 2 = 20
Active Member Plan Amendments	Lesser of active demographics or 15 years	Tier 1 = 20 Tier 2 = 10	Tier 1 = 15 Tier 2 = 15
Inactive Member Plan Amendments	Lesser of inactive demographics or 10 years	Tier 1 = 20 Tier 2 = 10	Tier 1 = 15 Tier 2 = 15

# Layered Amortizations – P&F



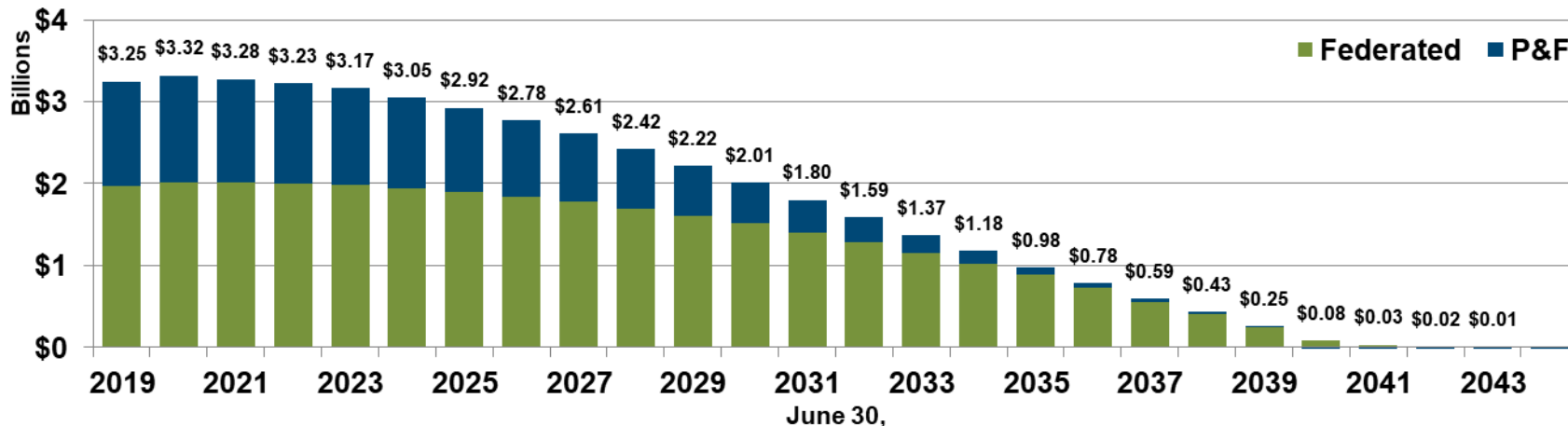
# Layered Amortizations – Federated



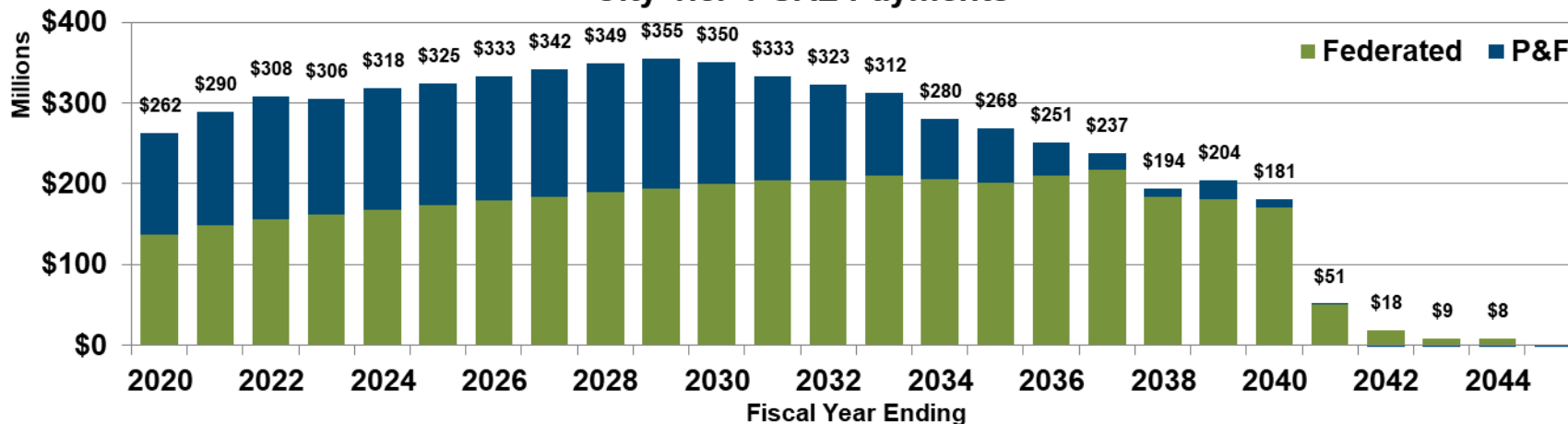
# UAL and Projected Payments



## Tier 1 UAL



## City Tier 1 UAL Payments

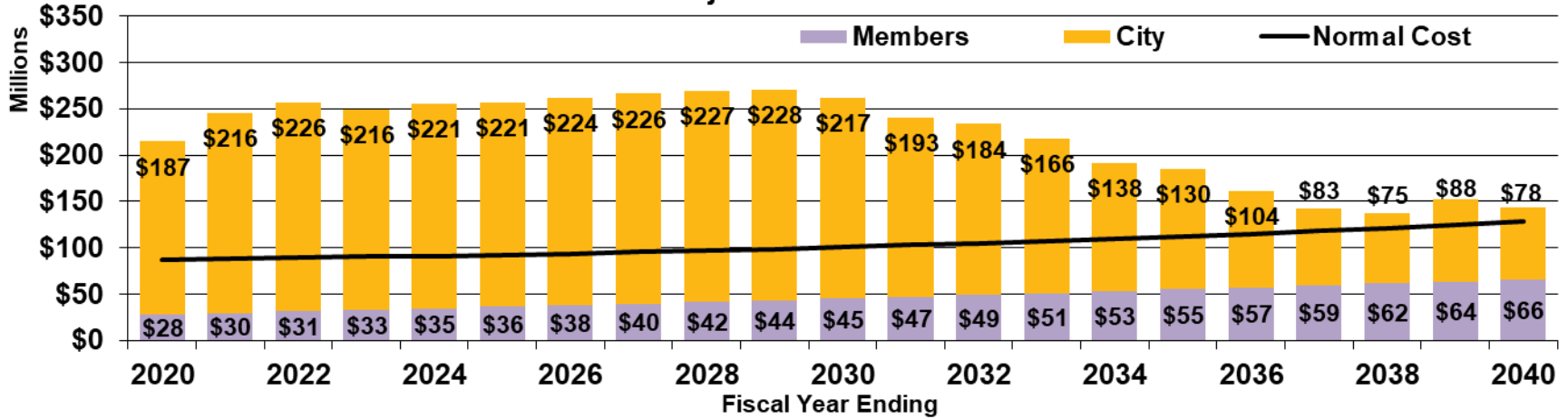




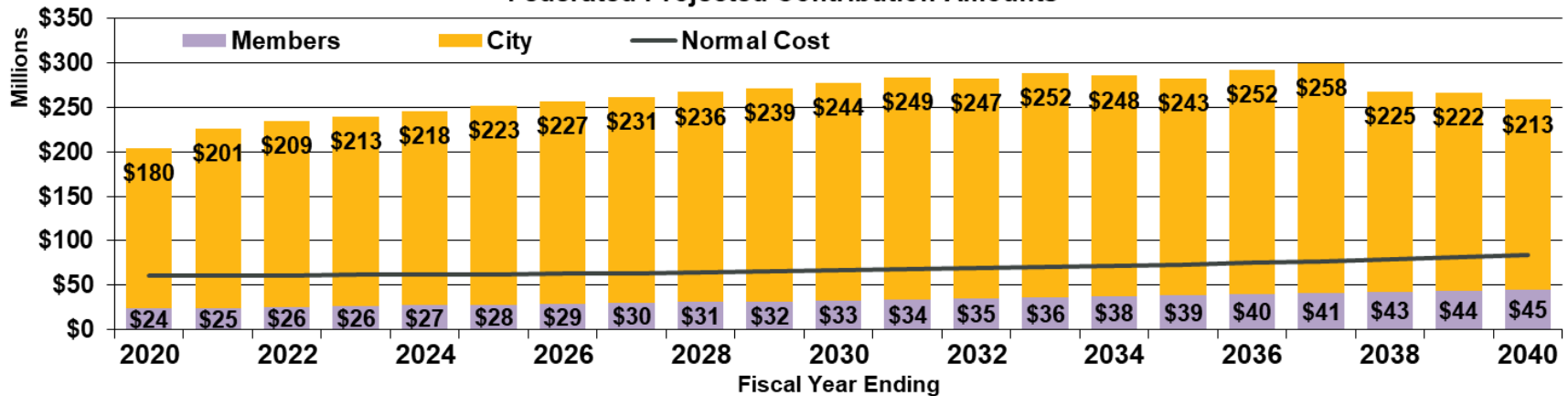
# Projected Contribution Amounts



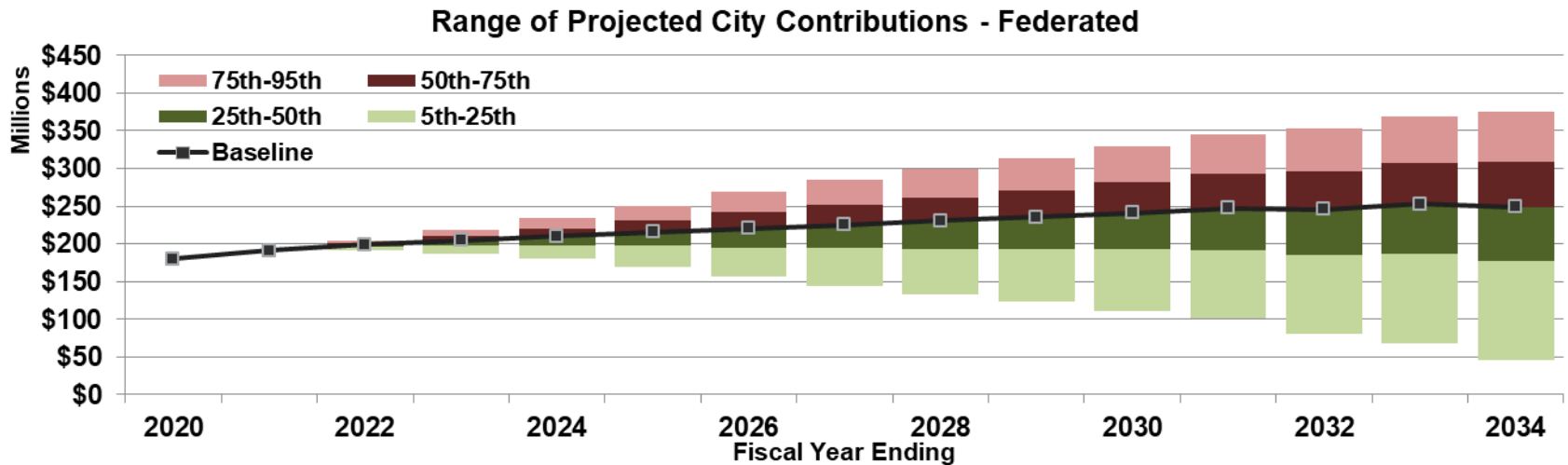
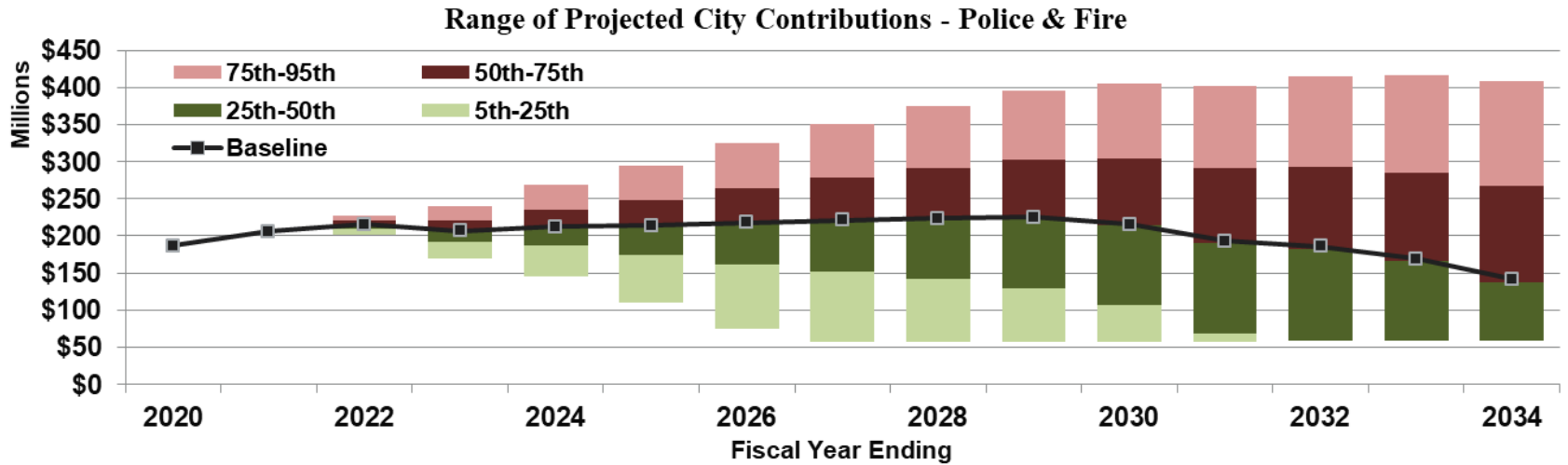
### Police & Fire Projected Contribution Amounts



### Federated Projected Contribution Amounts



# Projected Variability in Contributions



# Dedicated Contribution Streams



- Assume City had an ongoing stream of \$20 million per year dedicated to the pension plan
- Options
  1. Substitute for current contributions freeing up \$20 million per year in City budget
  2. Additional contributions to pay down Tier 1 UAL in general. Each payment amortized as experience gain
    - 15 years in Police & Fire
    - 20 years in Federated
  3. Dedicate stream to specific amortization layers. Each payment effectively amortized over remaining period of that layer
    - Retirement Boards would need to approve approach

# Police & Fire Model



## Stress Testing

P-scan

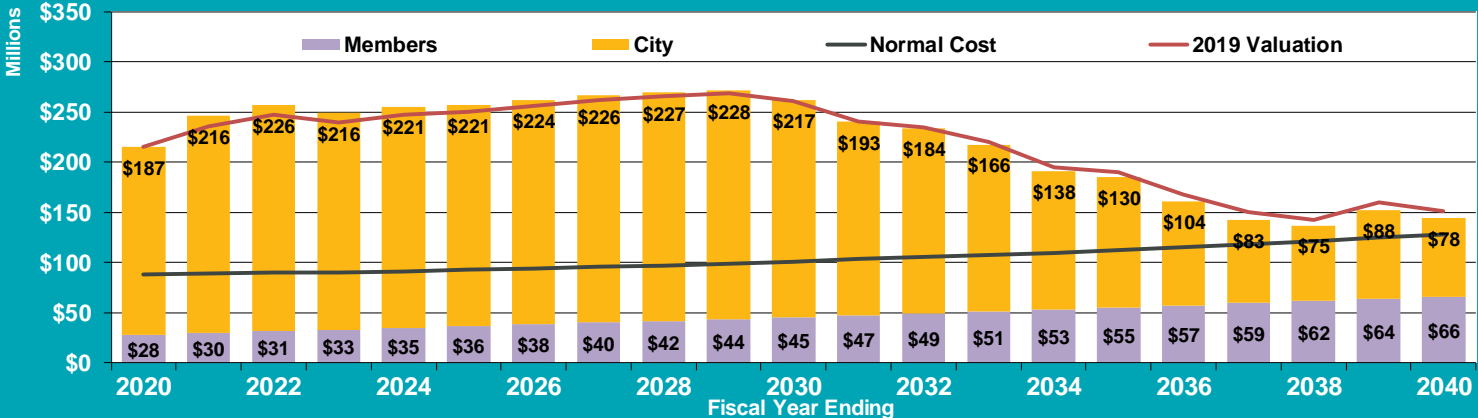
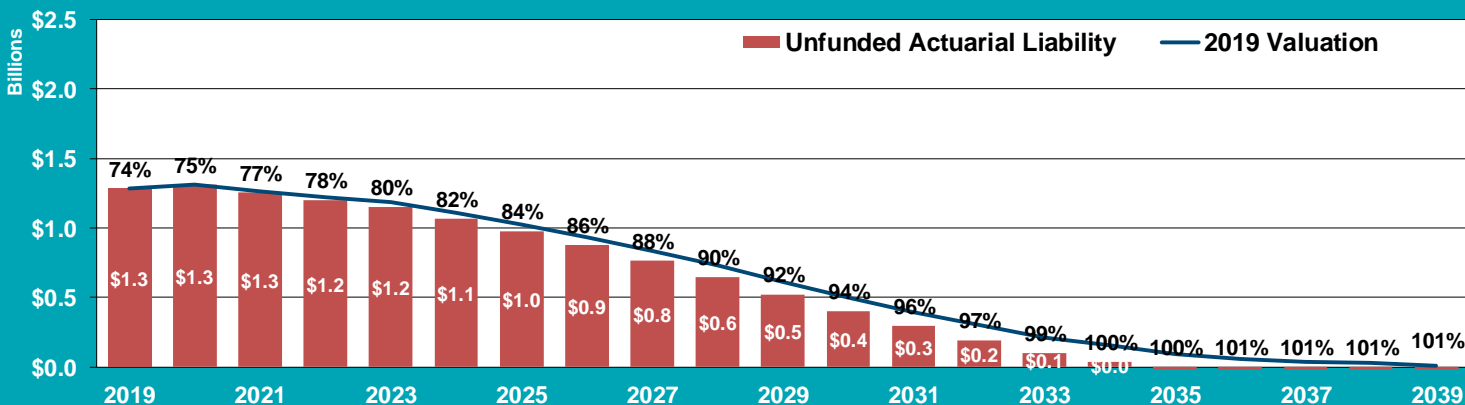
FYE

2020	6.75%
2021	6.75%
2022	6.75%
2023	6.75%
2024	6.75%
2025	6.75%
2026	6.75%
2027	6.75%
2028	6.75%
2029	6.75%
2030	6.75%
2031	6.75%
2032	6.75%
2033	6.75%
2034	6.75%
2035	6.75%
2036	6.75%
2037	6.75%
2038	6.75%
2039	6.75%
Avg	6.75%

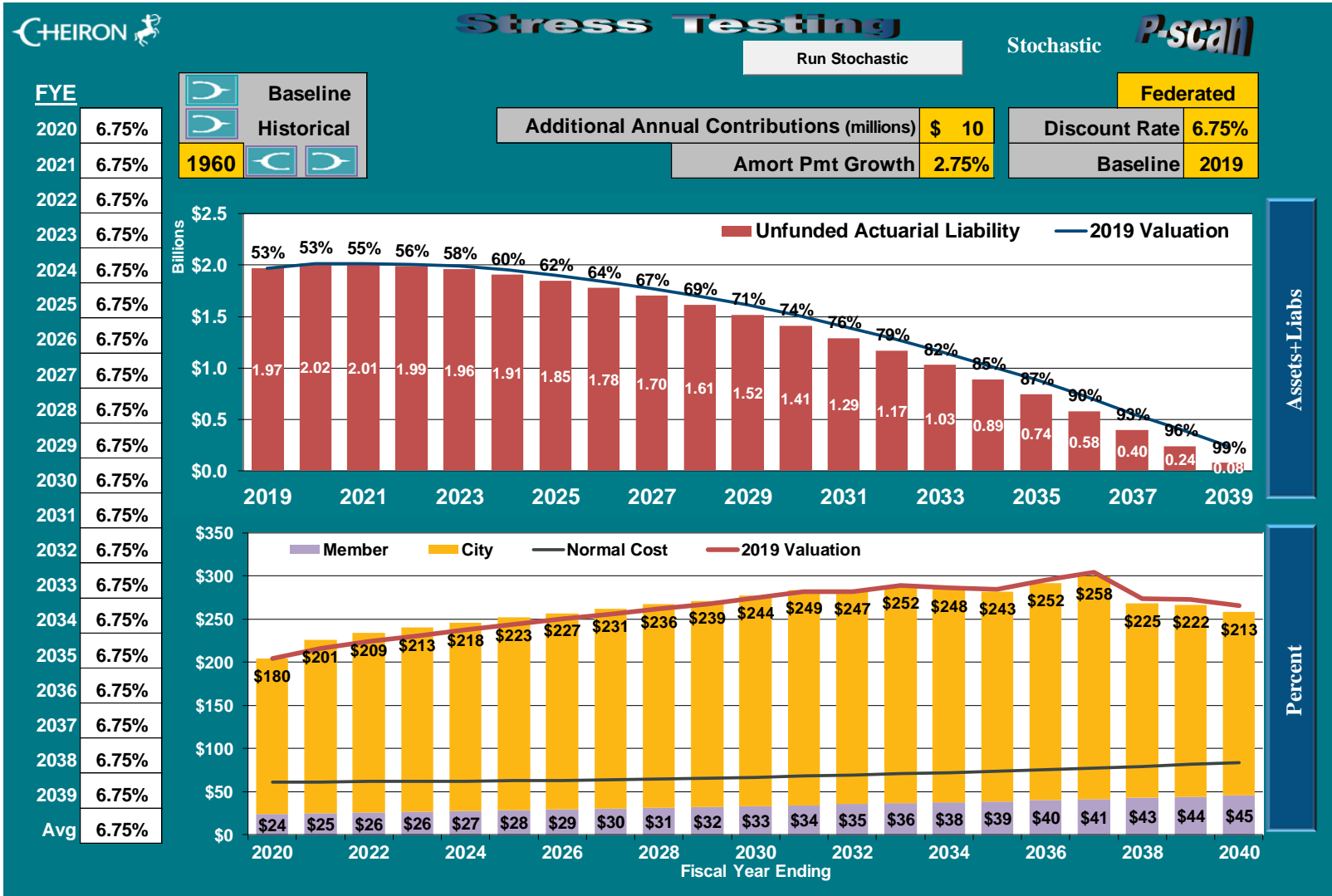
Baseline  
 Historical  
 1997

Additional Annual Contributions (millions)	\$ 10
Amort Pmt Growth	2.50%

All Tiers	
Discount Rate	6.75%
Baseline	2019



# Federated Model





- The purpose of this presentation is to present educational information to the Retirement Stakeholder Solutions Working Group of the City of San José.
- In preparing our presentation, we relied on the June 30, 2019 Actuarial Valuations of the City of San José Police and Fire Department Retirement Plan and the City of San José Federated City Employees' Retirement System. Please refer to those reports for a summary of the data, assumptions, methods, and plan provisions.
- This presentation and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices and my understanding of the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board as well as applicable laws and regulations. Furthermore, as a credentialed actuary, I meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this presentation. This presentation does not address any contractual or legal issues. I am not an attorney and our firm does not provide any legal services or advice.
- This presentation was prepared exclusively for the City of San José Retirement Stakeholder Solutions Working Group for the purpose described herein. Other users of this presentation are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to any other user.

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