Virginia Department of Rail & Public Transportation

Operating Assistance Metrics & Scenarios

Final Presentation

October 3, 2018

Agenda

- Background (Review)
- Goals & Policy Objectives
- Operating Assistance Allocation Methods Used in Other States
- Potential Sizing Metrics
- Allocation Approaches
- Allocation Scenario Results
- Recommended Approach

Background (Review from Prior Meetings)

- Currently, operating assistance funds are allocated based on agency:
  - *Operating Cost (traditional funding) and*
  - *Performance (**performance-based funding**)*
- **Performance-based funding** is based on:
  - *2 sizing metrics:*
    - Operating cost
    - Ridership
  - *Adjusted based on 3 performance adjustment metrics:*
    - Passengers per revenue hour
    - Passengers per revenue mile
    - Net cost per passenger
- Sizing metrics have the largest impact on allocations
- Performance adjustment metrics have marginal effect on allocations

Presentation Objectives

- Confirm goal and policy objectives
- Introduce allocation methods applied in other states
- Introduce potential sizing metrics and allocation approaches
- Determine recommended approach or further information needs

Goals & Policy Objectives

- Allocation Goal: Equitably allocate funding based on “size” of transit agency

- Introduced during last meeting:
  - Promote Fiscal Responsibility
  - Support Robust Transit Service
  - Improved Transit Patronage

- Suggested by TSDAC in September:
  - Incentivize Efficient Operations
  - Support Social Safety Net
  - Promote Mobility

Other States' Operating Assistance Methods and Metrics

- TSDAC requested information on transit operating funding allocation practices of other states

- In general, other states use similar sizing metrics considered here, including:
  - Operating Cost
  - Ridership
  - Revenue Miles and Hours

- Some states use population as a sizing metric, but it is not a transit performance measure

Other States' Operating Assistance Methods and Metrics

- States examined in 2014 Report to TSDAC
  - Kansas – Formula for urban areas
    - 40% Population
    - 40% Ridership
    - 20% Revenue miles
  - New York
    - Large agency funding is a budget line item; some funding dedicated
    - Small agencies receive fixed amounts per Passengers and Passenger Miles
  - Ohio – Used to use a formula – now uses past year allocations
    - Urban programs receive grants based on 50% ridership, 50% cost per hour, passenger per mile, and farebox recovery rate
  - Pennsylvania
    - Urban Formula
      - 25% Passengers
      - 10% Senior premium
      - 35% Revenue hours
      - 30% Revenue miles

Other States' Operating Assistance Methods and Metrics

- Additional states
  - Michigan
    - Local bus operating assistance levels based on population
      - Up to 60% for urban areas under 100,000
      - Up to 50% for urban areas over 100,000
  - Wisconsin
    - Four tiers of state funding based on systems' size and population
  - Illinois
    - Separate programs for Northeastern Illinois (Chicago area) and Downstate
      - Downstate pays up to 65% of eligible expenses in addition to annual general assembly appropriations
      - Dedicated funding for Northeastern Illinois

Understanding Sizing Metrics

— Sizing metrics base allocations on the “size” of the agency

— Sizing must reflect the service and span of the agency
  — *They cannot be ratios such as cost / passenger mile*

— Sizing metrics have the largest impact on allocations

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Potential Sizing Metrics

- Cost
  - Operating Cost
  - Net Operating Cost
- Delivered Service
  - Revenue Vehicle Miles
  - Revenue Vehicle Hours
  - Peak Vehicles
  - Peak Vehicle Seats
- Ridership
  - Unlinked Passenger Trips
  - Passenger Miles Traveled
- Service Area Characteristics
  - Population

Alignment of Metrics with Policy Objectives

Sizing Metric	Promotes Fiscal Responsibility	Incentivizes Efficient Operations	Supports Robust Transit Service	Rewards Higher Patronage	Promotes Mobility	Supports Social Safety Net
Cost						
Net Cost	✓	✓				
Revenue Hours			✓		✓	
Revenue Miles			✓		✓	
Peak Vehicles			✓			
Peak Vehicle Seats			✓			
Ridership				✓	✓	
Passenger Miles Traveled				✓	✓	

Alignment of Metrics with Policy Objectives: Usable Options

Sizing Metric	Promotes Fiscal Responsibility	Incentivizes Efficient Operations	Supports Robust Transit Service	Rewards Higher Patronage	Promotes Mobility	Supports Social Safety Net	Data Exists
Cost							✓
Net Cost	✓	✓					✓
Revenue Hours			✓		✓		✓
Revenue Miles			✓		✓		✓
Peak Vehicles			✓				
Peak Vehicle Seats			✓				
Ridership				✓	✓		✓
Passenger Miles Traveled				✓	✓		Partial

Allocation Approach

- The following metrics cover the policy objectives, and have data available:
  - Net Cost
  - Revenue Hours
  - Revenue Miles
  - Ridership
  - Passenger Miles Traveled

- Combinations of these metrics may cover 5 out of 6 policy objectives

Potential Allocation Scenarios

Scenario Name	Cost	Net Cost	Ridership	PMT	Rev Miles	Rev Hours
1. Net Cost, PMT, Revenue Miles		33%		33%	33%	
2. Net Cost, PMT, Revenue Hours		33%		33%		33%
3. Net Cost, Ridership, Revenue Miles		33%	33%		33%	
4. Net Cost, Ridership, Revenue Hours		33%	33%			33%
5. Net Cost, Ridership, PMT, Revenue Miles		25%	25%	25%	25%	
6. Ridership, Revenue Hours, Revenue Miles			33%		33%	33%
7. Net Cost, Ridership		50%	50%			
8. PMT, Revenue Hours, Revenue Miles				33%	33%	33%
9. Ridership, Revenue Miles			50%		50%	
10. Ridership, Revenue Hours			50%			50%
11. Cost, Ridership, Revenue Miles	33%		33%		33%	
12. Cost, Ridership, Revenue Hours	33%		33%			33%
13. Cost, Ridership (emphasized)	25%		75%			
14. Cost (emphasized), Ridership	75%		25%			
15. Cost, Ridership	50%		50%			
16. Ridership	100%					
17. Cost, PMT	50%			50%		
18. Cost	100%					

Allocation Scenarios – Alignment with Policy Objectives

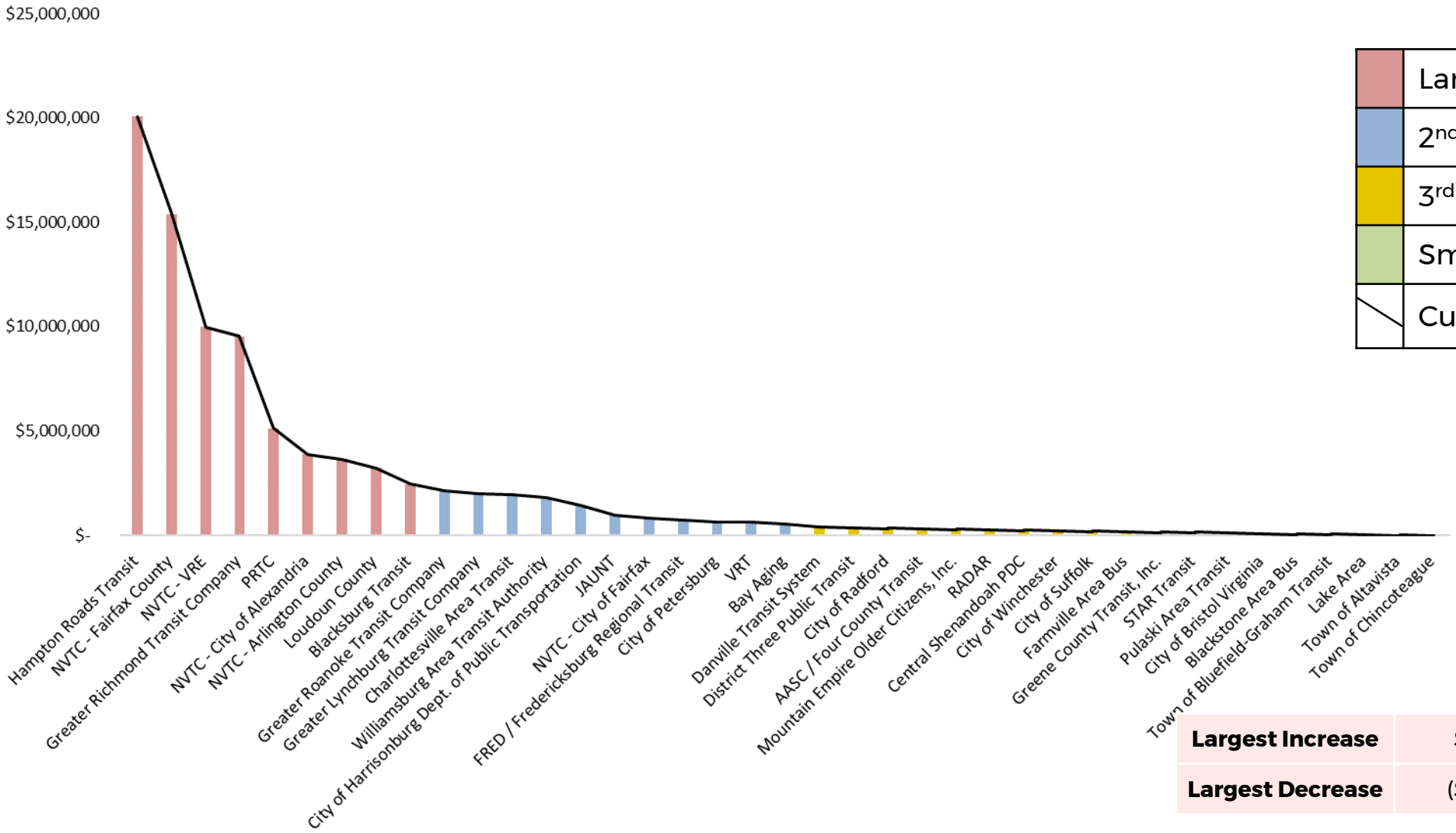
Scenario Name	Promotes Fiscal Responsib-ility	Incentivizes Efficient Operations	Supports Robust Transit Service	Rewards Higher Patronage	Promotes Mobility	Sum
1. Net Cost, PMT, Revenue Miles	✓	✓	✓	✓	✓	5
2. Net Cost, PMT, Revenue Hours	✓	✓	✓	✓	✓	5
3. Net Cost, Ridership, Revenue Miles	✓	✓	✓	✓	✓	5
4. Net Cost, Ridership, Revenue Hours	✓	✓	✓	✓	✓	5
5. Net Cost, Ridership, PMT, Revenue Miles	✓	✓	✓	✓	✓	5
6. Net Cost, Ridership	✓	✓		✓	✓	4
7. Ridership, Revenue Hours, Revenue Miles			✓	✓	✓	3
8. PMT, Revenue Hours, Revenue Miles			✓	✓	✓	3
9. Ridership, Revenue Miles			✓	✓	✓	3
10. Ridership, Revenue Hours			✓	✓	✓	3
11. Cost, Ridership, Revenue Miles			✓	✓	✓	3
12. Cost, Ridership, Revenue Hours			✓	✓	✓	3
13. Cost, Ridership (emphasized)				✓	✓	2
14. Cost (emphasized), Ridership				✓	✓	2
15. Cost, Ridership				✓	✓	2
16. Ridership				✓	✓	2
17. Cost, PMT				✓	✓	2
18. Cost						0

Featured Allocation Scenarios

Scenario Name	Net Cost	Ridership	PMT	Rev Miles	Rev Hour	Objectives
1. Net Cost, PMT, Revenue Miles	33%		33%	33%		5
2. Net Cost, Ridership, Revenue Miles	33%	33%		33%		5
3. Net Cost, Ridership, PMT, Revenue Miles	25%	25%	25%	25%		5

FY19 Actual Allocations
(Traditional and Performance)

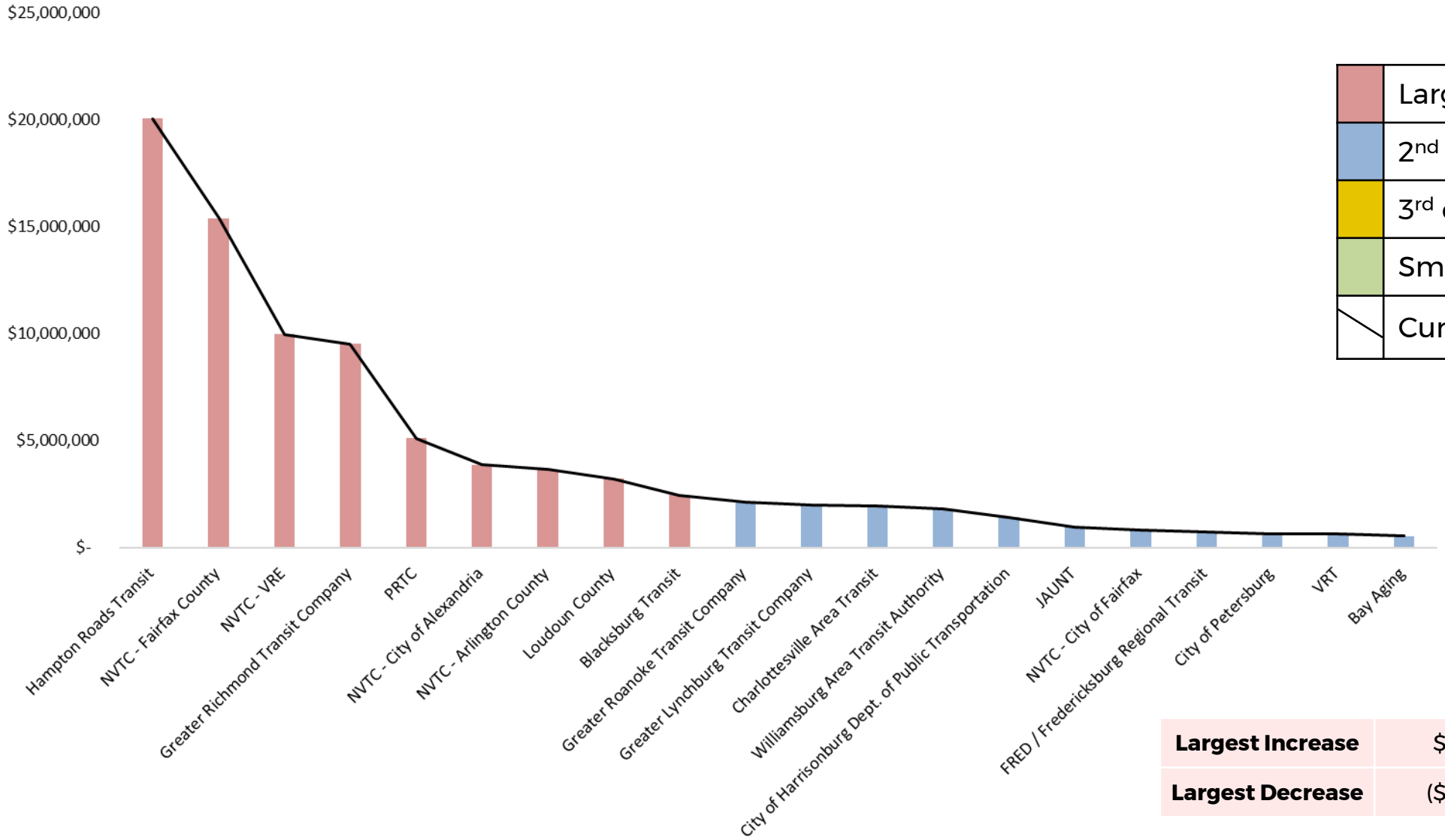
Current allocation of operating assistance to Virginia agencies



Largest quartile	
2nd quartile	
3rd quartile	
Smallest quartile	
Current Allocation	

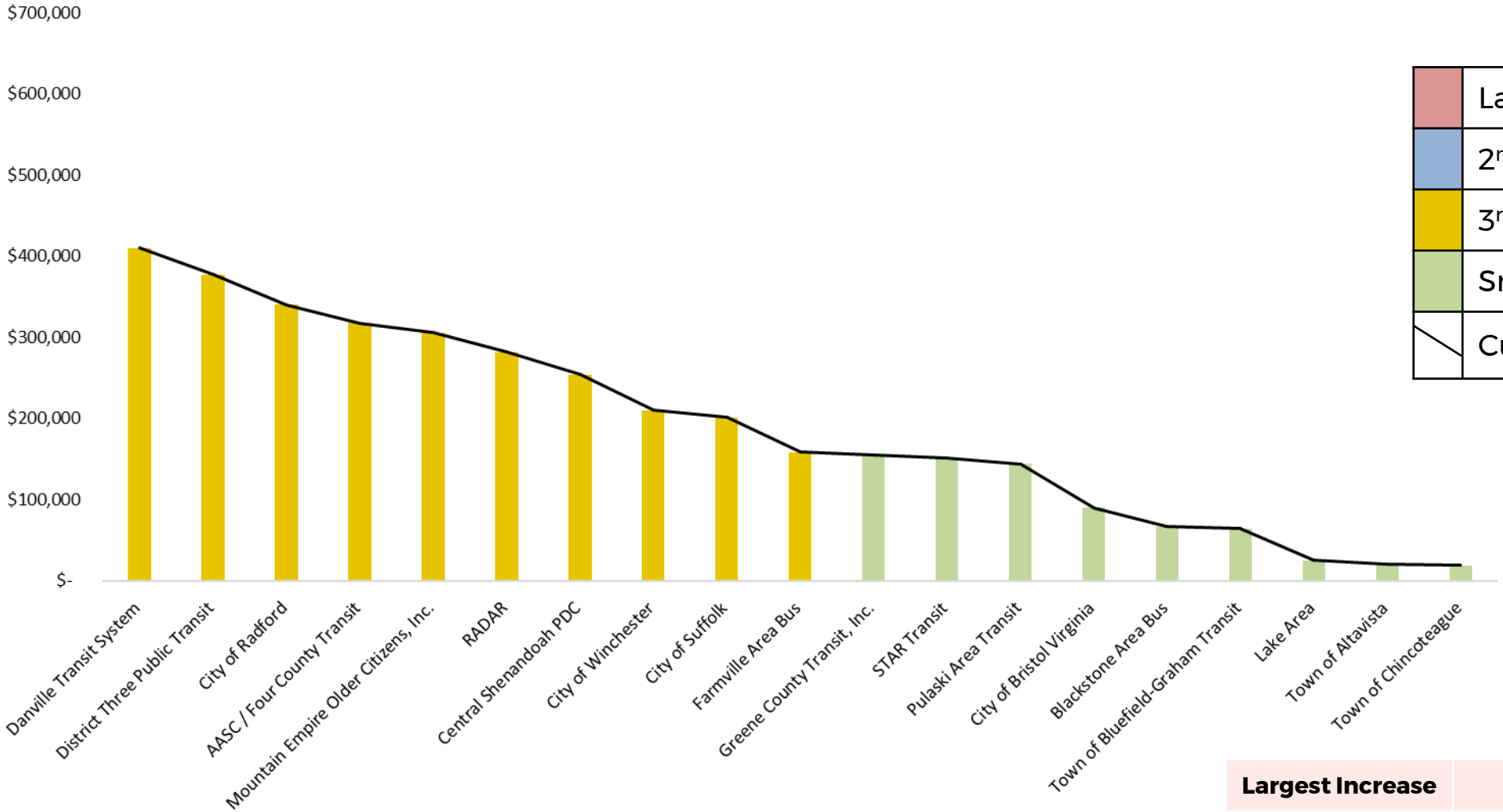
Largest Increase	$0	0%
Largest Decrease	($0)	(0%)

Current allocation of operating assistance to Virginia agencies: 1st and 2nd Quartile Agencies



Largest Increase	$0	0%
Largest Decrease	($0)	(0%)

Current allocation of operating assistance to Virginia agencies: 3rd and 4th Quartile Agencies



Largest Increase	$0	0%
Largest Decrease	($0)	(0%)

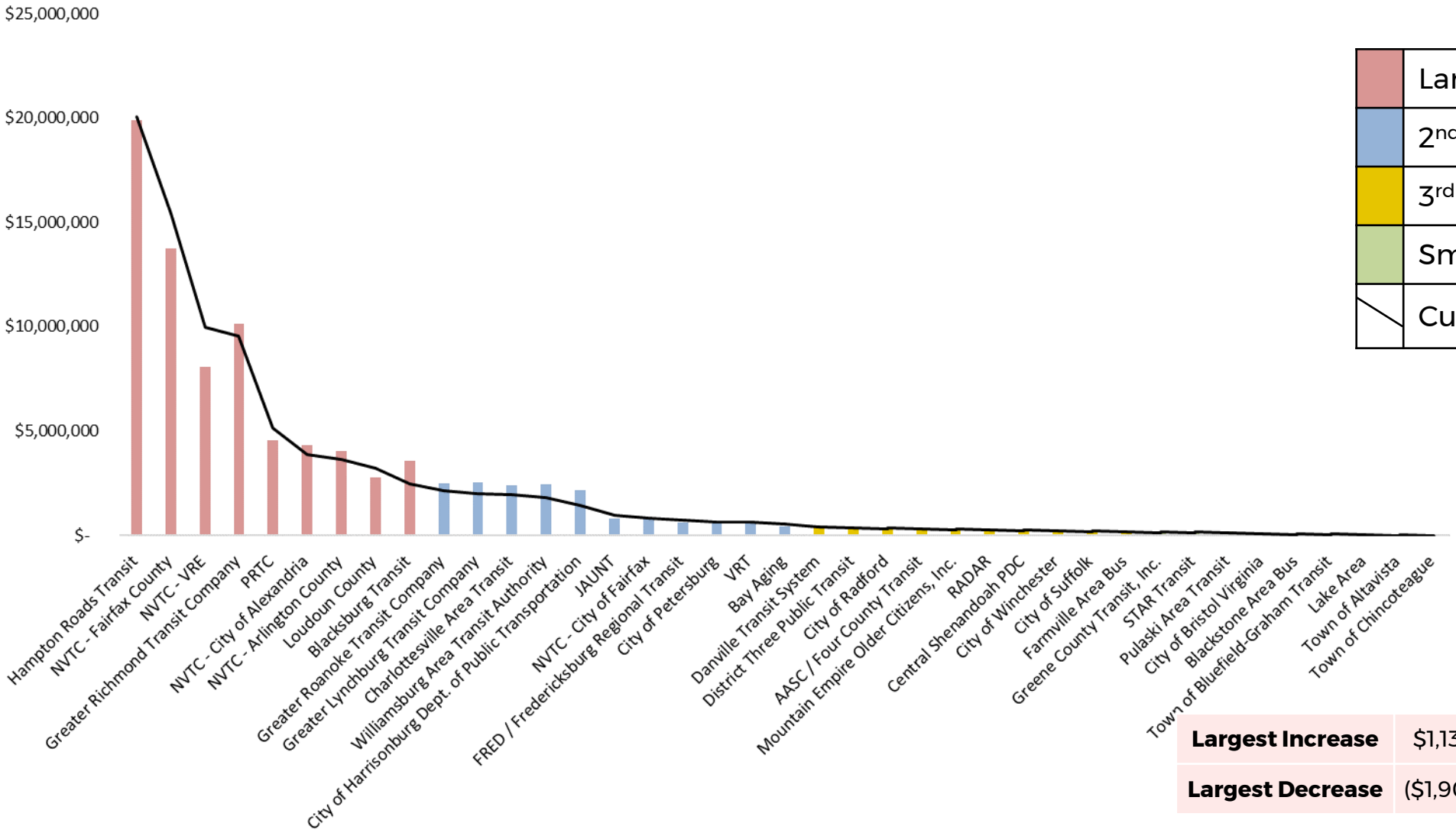
Existing Sizing

50% Operating Cost /
50% Ridership

Existing Sizing
50% Cost
50% Ridership

50% Cost / 50% Ridership – All Agencies

Line is Current Allocation Method for FY19



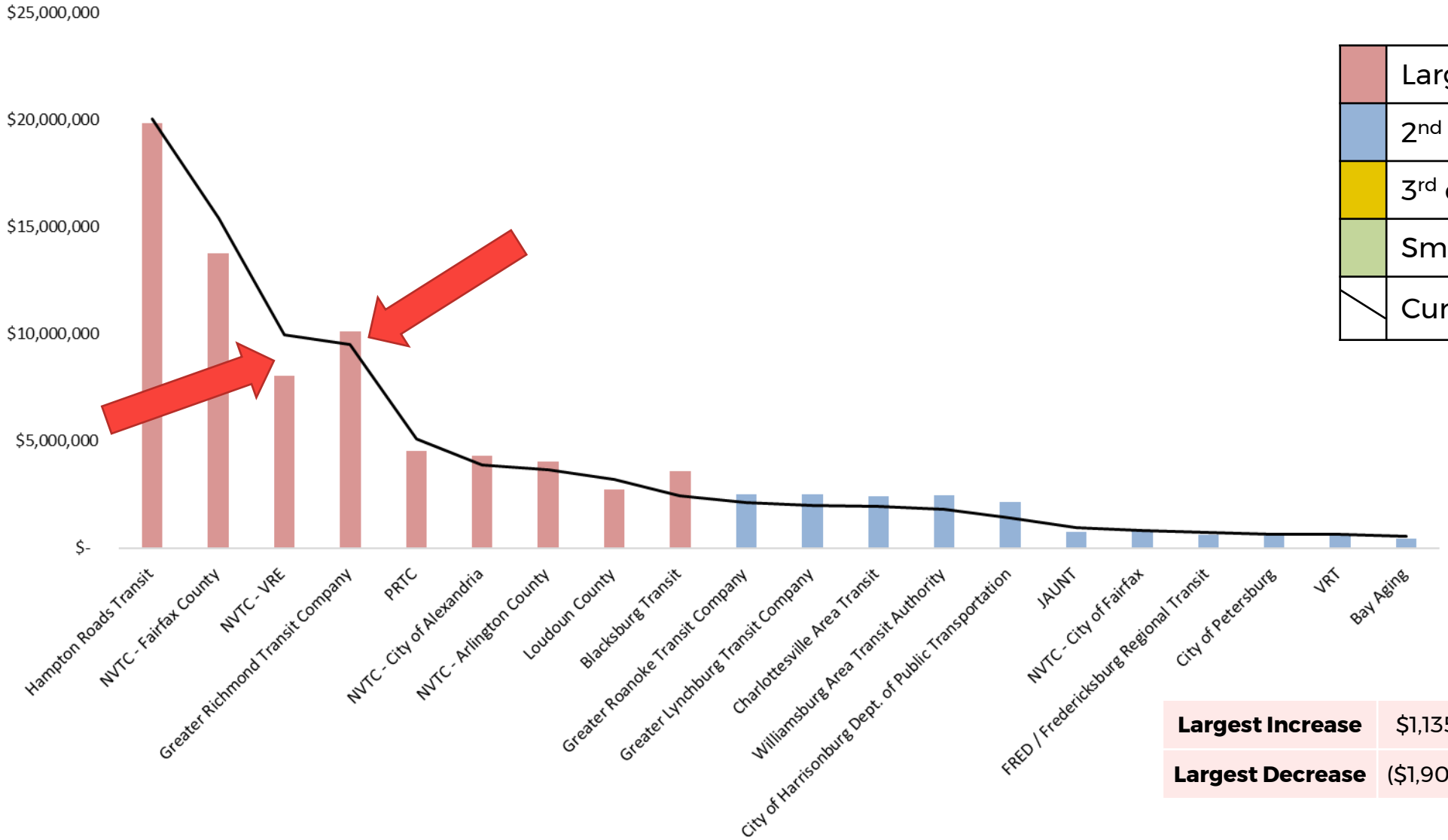
Largest quartile	
2nd quartile	
3rd quartile	
Smallest quartile	
Current Allocation	

Largest Increase	$1,135,096	53%
Largest Decrease	($1,907,678)	(23%)

Existing Sizing
50% Cost
50% Ridership

50% Cost / 50% Ridership – 1st and 2nd Quartile Agencies

Line is Current Allocation Method for FY19

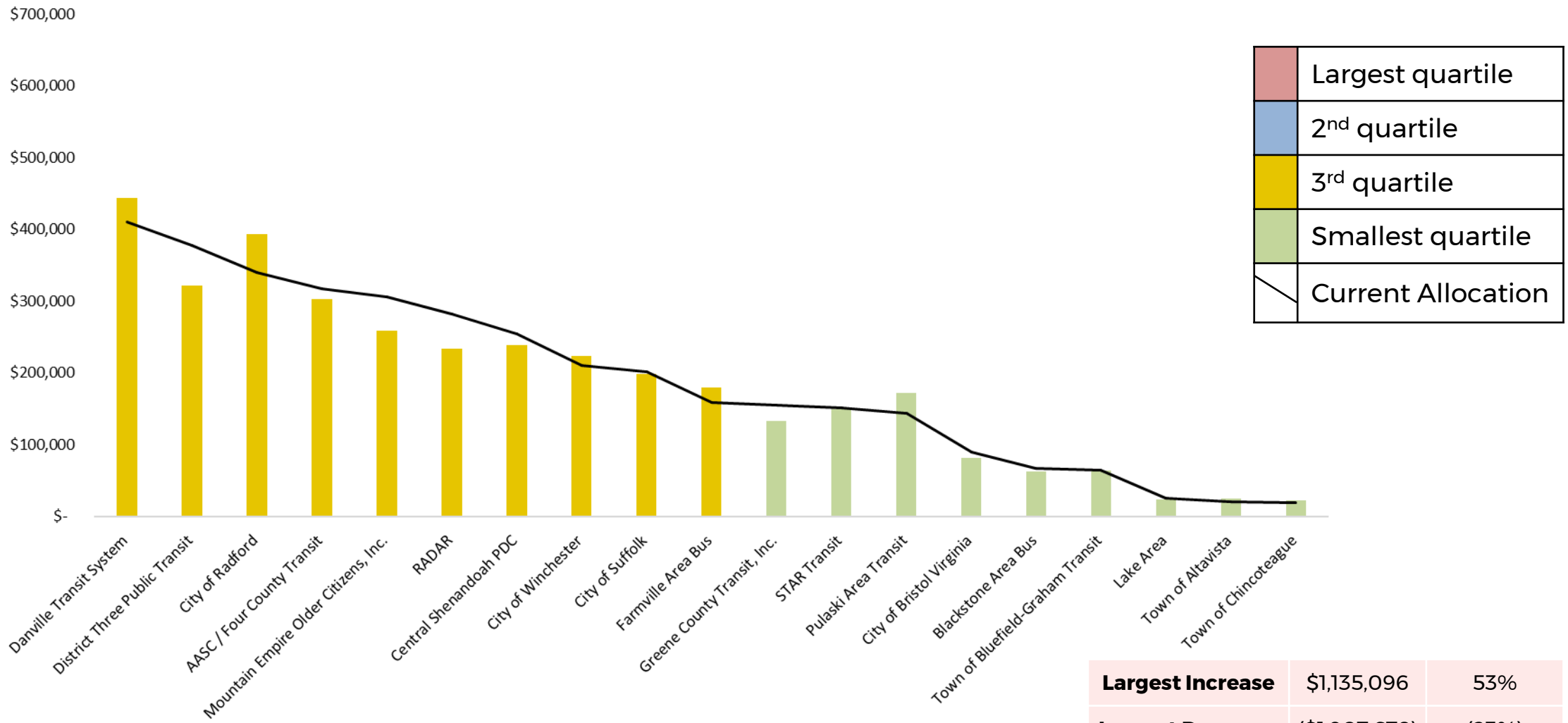


Largest Increase	$1,135,096	53%
Largest Decrease	($1,907,678)	(23%)

Existing Sizing
50% Cost
50% Ridership

50% Cost / 50% Ridership – 3rd and 4th Quartile Agencies

Line is Current Allocation Method for FY19

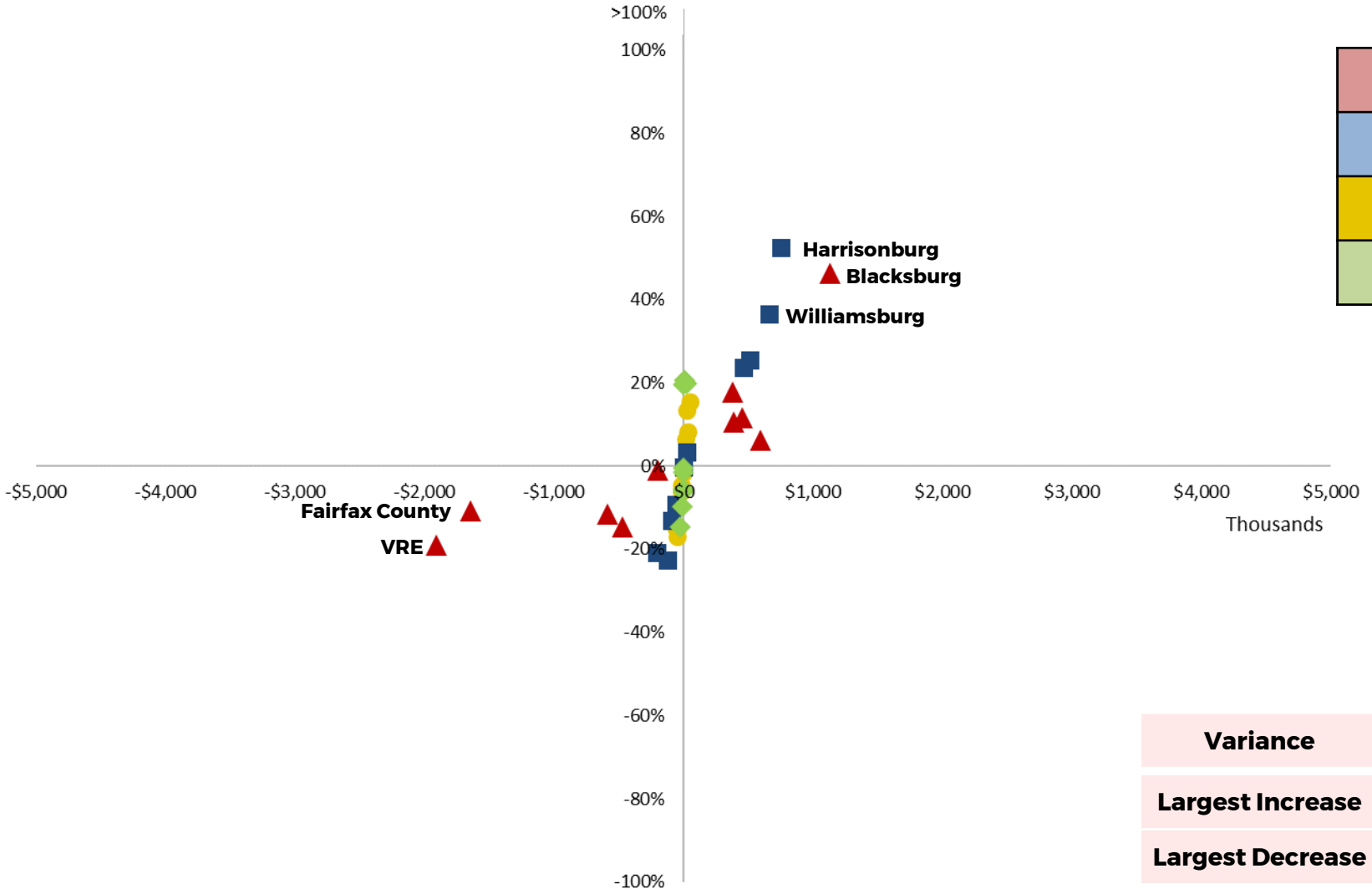


Largest Increase	$1,135,096	53%
Largest Decrease	($1,907,678)	(23%)

Existing Sizing
50% Cost
50% Ridership

50% Cost / 50% Ridership

No Change is at Zero on the Axes



Largest quartile
2nd quartile
3rd quartile
Smallest quartile

Variance	0.032	
Largest Increase	$1,135,096	53%
Largest Decrease	($1,907,678)	(23%)

Scenarios

Featured Allocation Scenarios

Scenario Name	Net Cost	Ridership	PMT	Rev Miles	Rev Hour	Objectives
1. Net Cost, PMT, Revenue Miles	33%		33%	33%		5
2. Net Cost, Ridership, Revenue Miles	33%	33%		33%		5
3. Net Cost, Ridership, PMT, Revenue Miles	25%	25%	25%	25%		5

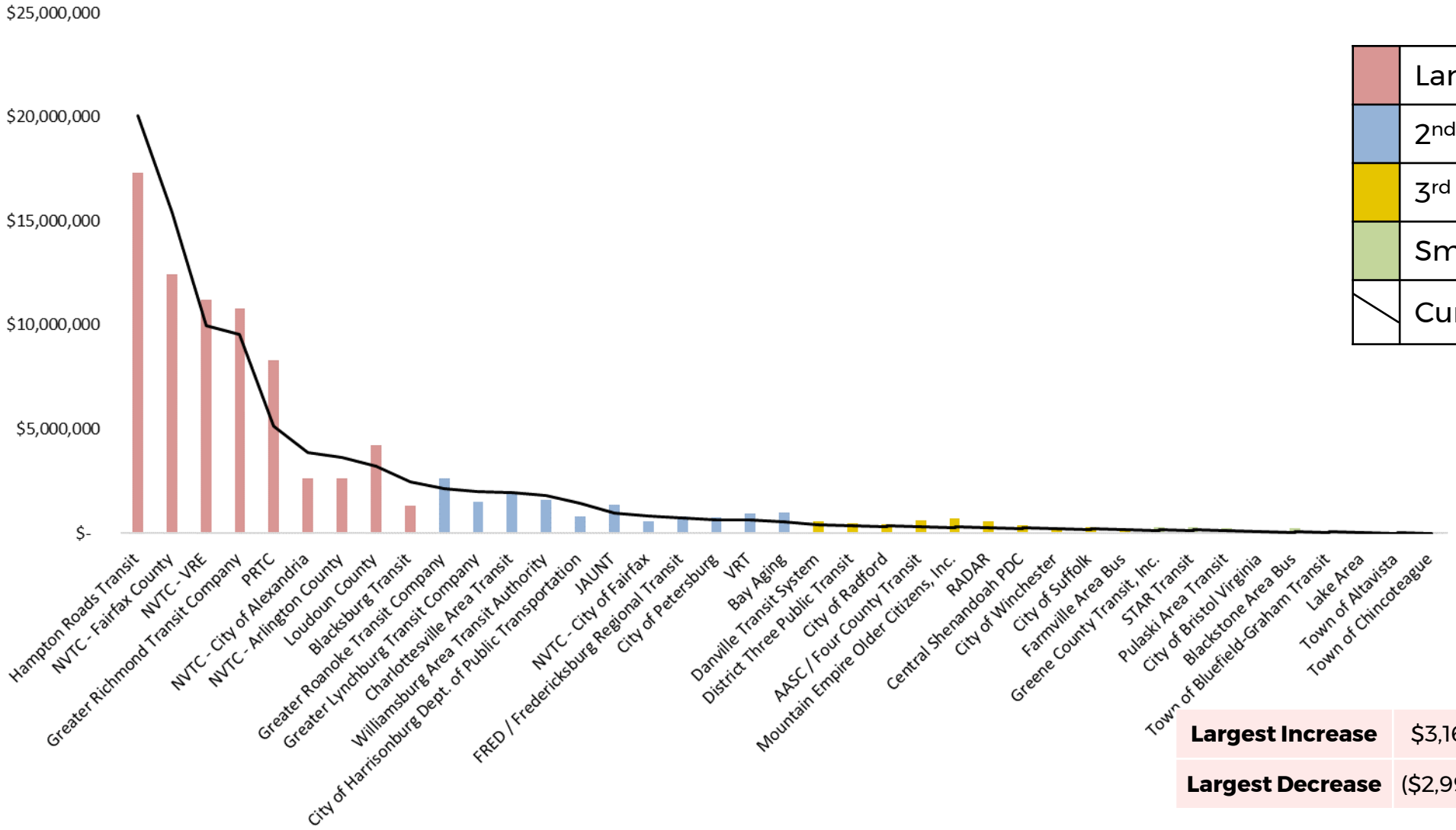
Scenario 1

33% Net Operating Cost
33% Passenger Miles Traveled
33% Revenue Vehicle Miles

Scenario 1
33% Net Cost
33% PMT
33% Rev Miles

Scenario 1 – All Agencies

Line is Current Allocation Method for FY19



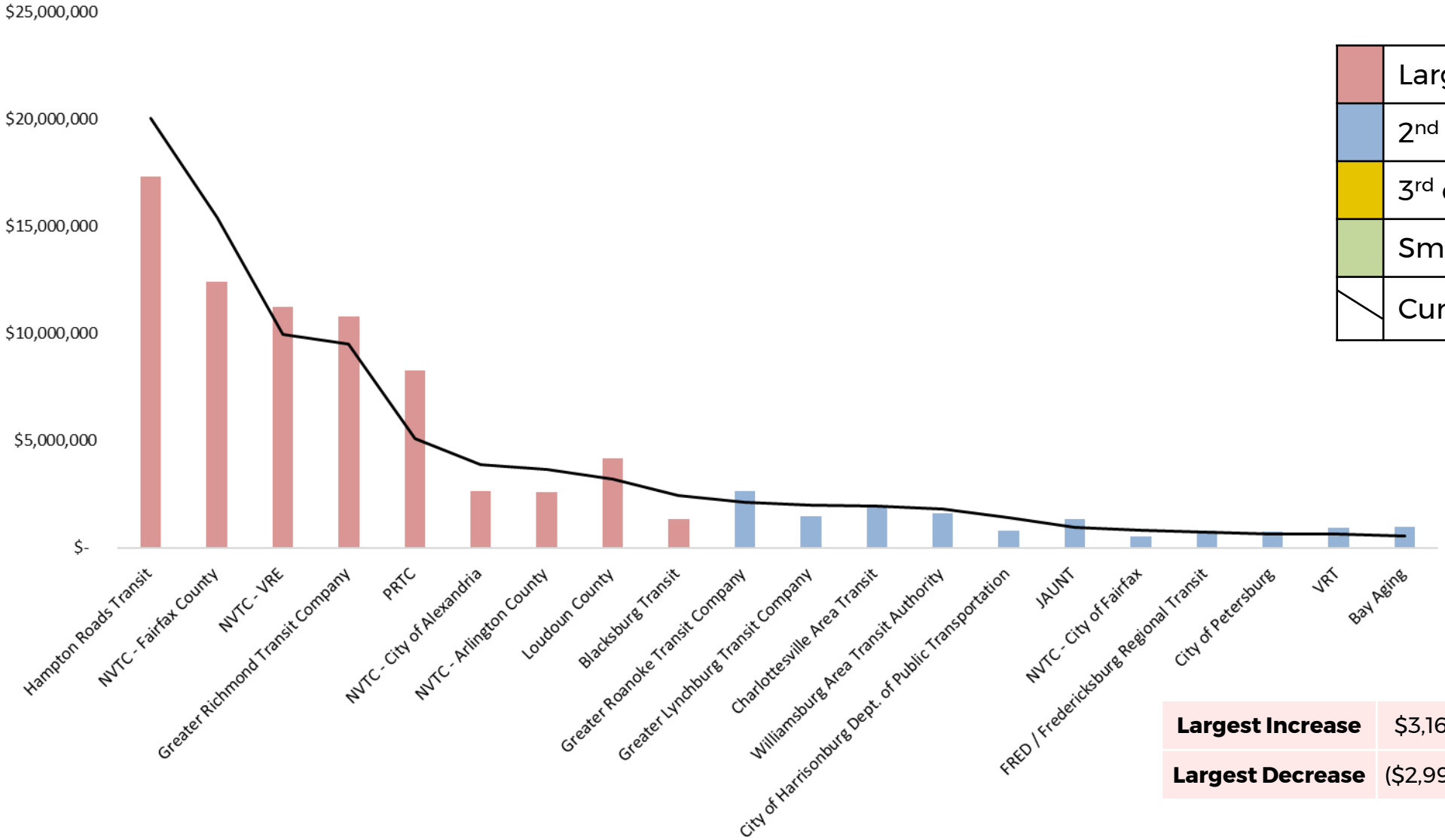
	Largest quartile
	2nd quartile
	3rd quartile
	Smallest quartile
	Current Allocation

Largest Increase	$3,163,592	257%
Largest Decrease	($2,993,878)	(45%)

Scenario 1
33% Net Cost
33% PMT
33% Rev Miles

Scenario 1 – 1st and 2nd Quartile Agencies

Line is Current Allocation Method for FY19

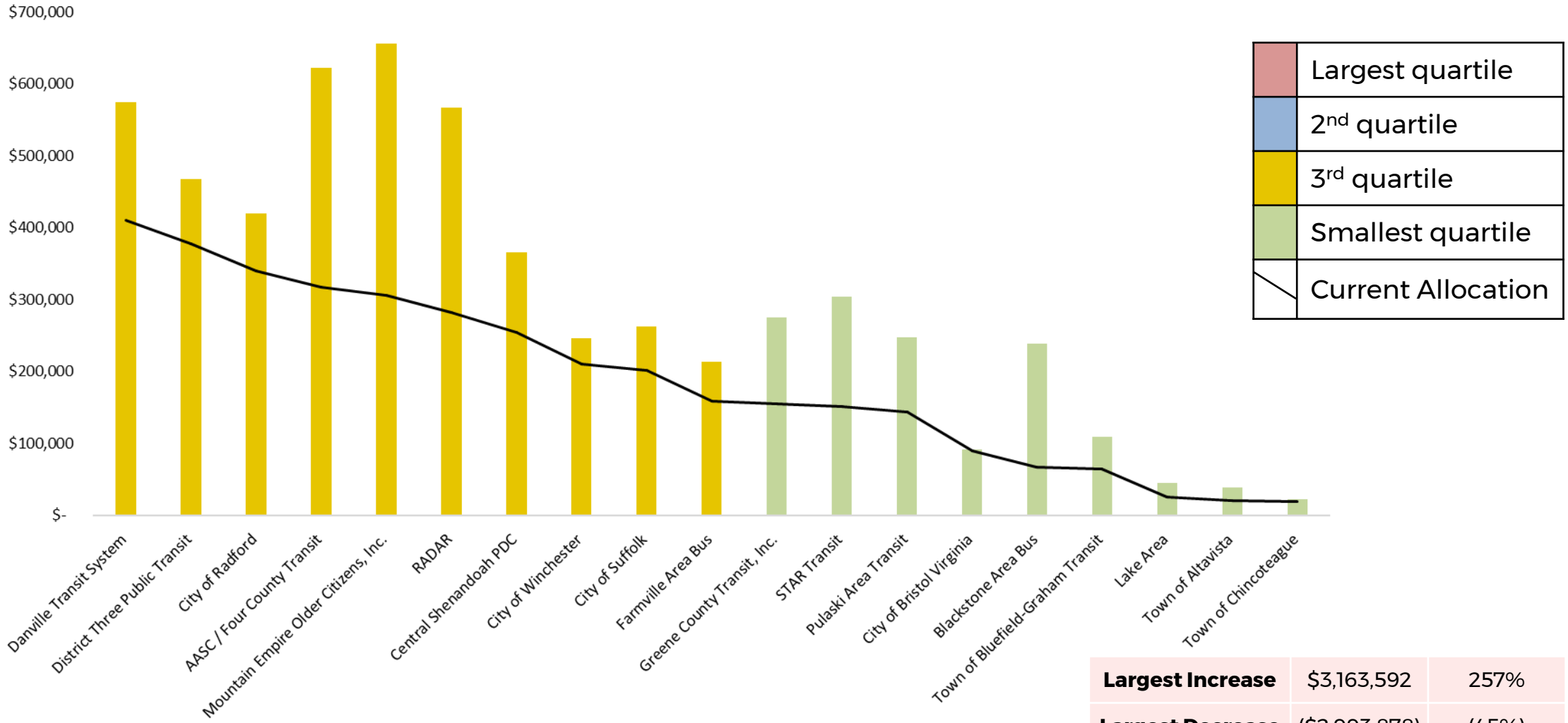


Largest Increase	$3,163,592	257%
Largest Decrease	($2,993,878)	(45%)

Scenario 1
33% Net Cost
33% PMT
33% Rev Miles

Scenario 1 – 3rd and 4th Quartile Agencies

Line is Current Allocation Method for FY19

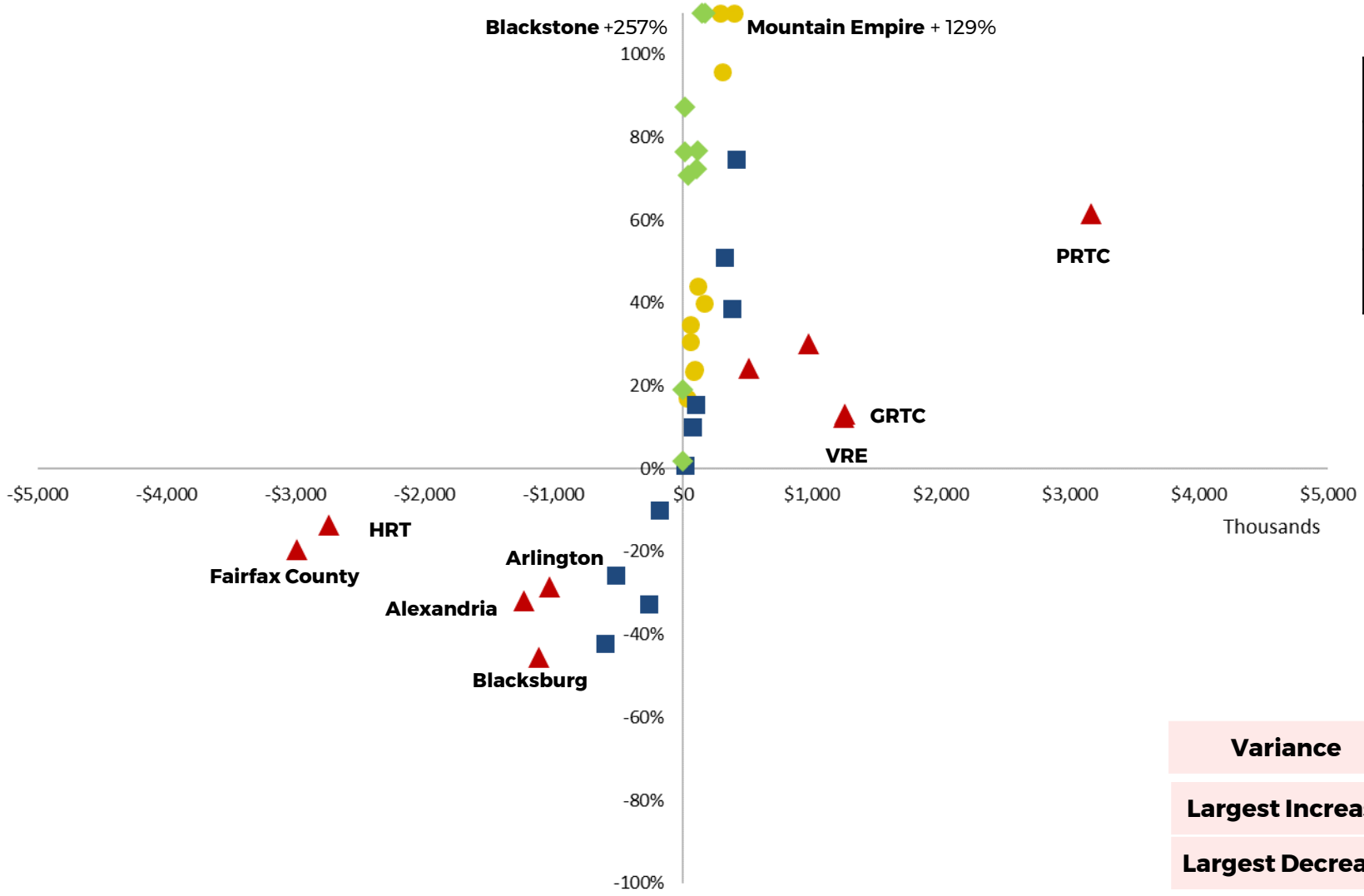


Largest Increase	$3,163,592	257%
Largest Decrease	($2,993,878)	(45%)

Scenario 1
33% Net Cost
33% PMT
33% Rev Miles

Scenario 1

No Change is at Zero on the Axes



Largest quartile	
2nd quartile	
3rd quartile	
Smallest quartile	

Variance	0.317	
Largest Increase	$3,163,592	257%
Largest Decrease	($2,993,878)	(45%)

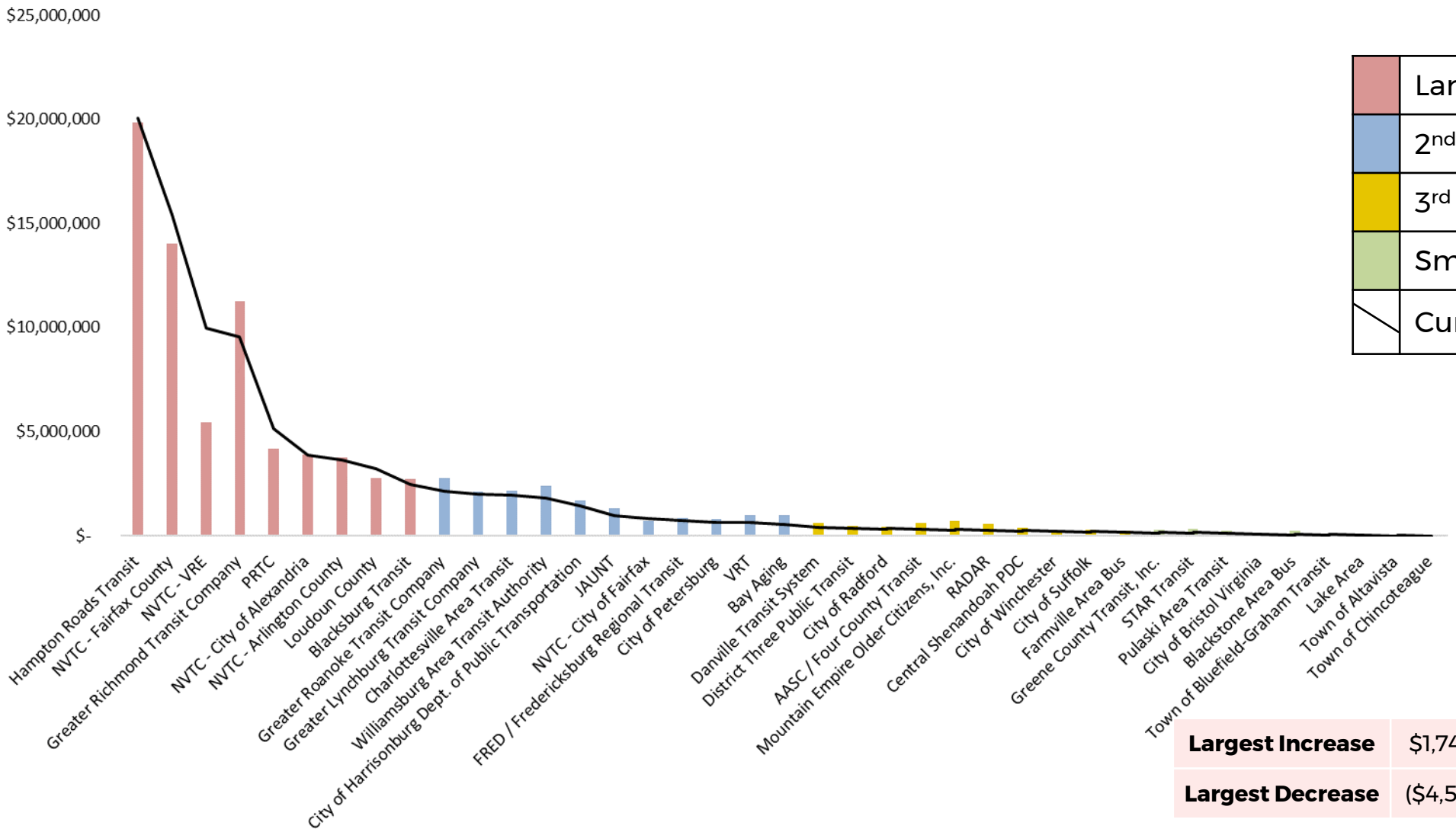
Scenario 2

33% Net Operating Cost
33% Ridership
33% Revenue Vehicle Miles

Scenario 2
33% Net Cost
33% Ridership
33% Rev Miles

Scenario 2 – All Agencies

Line is Current Allocation Method for FY19



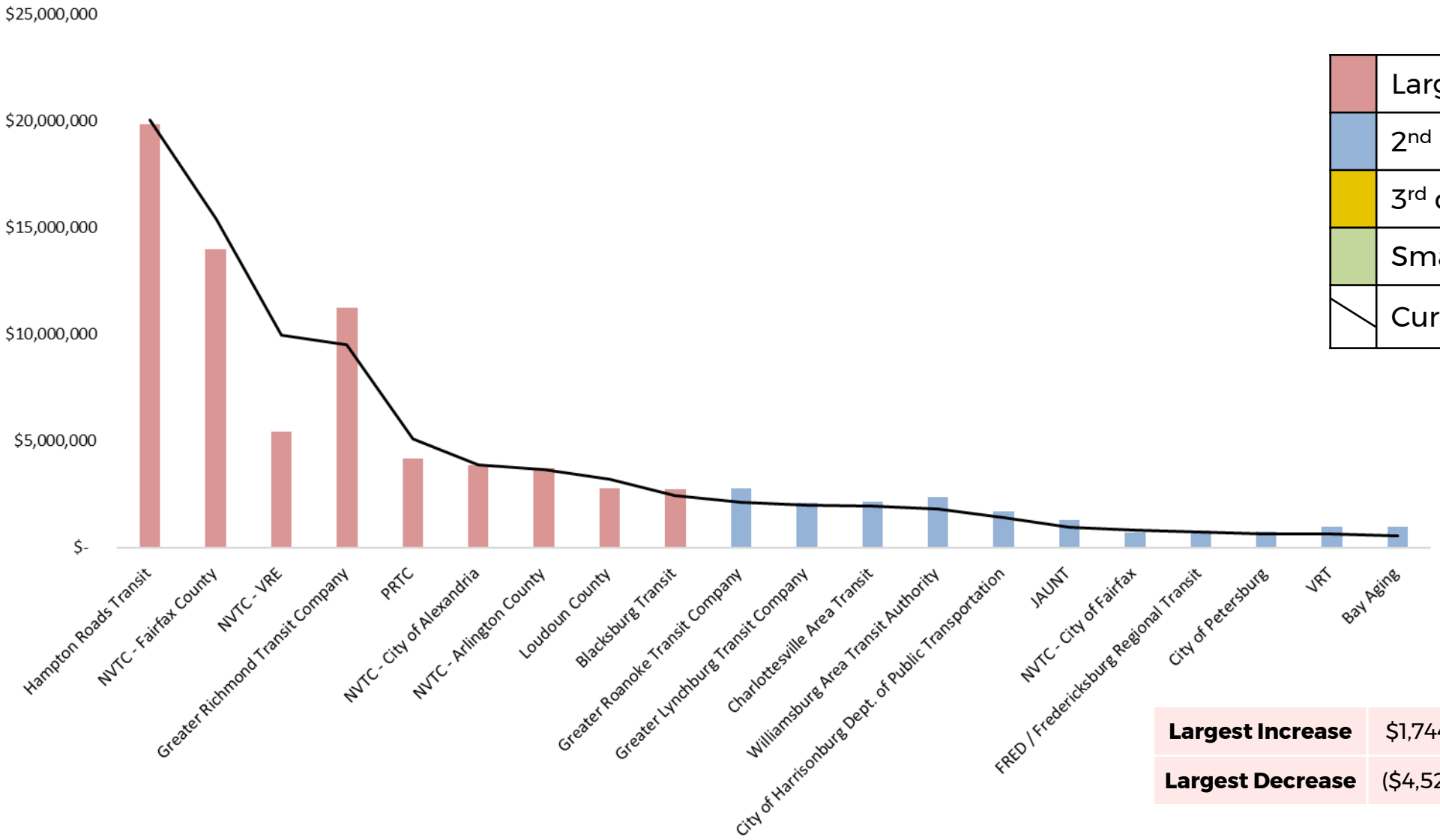
	Largest quartile
	2nd quartile
	3rd quartile
	Smallest quartile
	Current Allocation

Largest Increase	$1,744,935	259%
Largest Decrease	($4,521,174)	(45%)

Scenario 2
33% Net Cost
33% Ridership
33% Rev Miles

Scenario 2 – 1st and 2nd Quartile Agencies

Line is Current Allocation Method for FY19

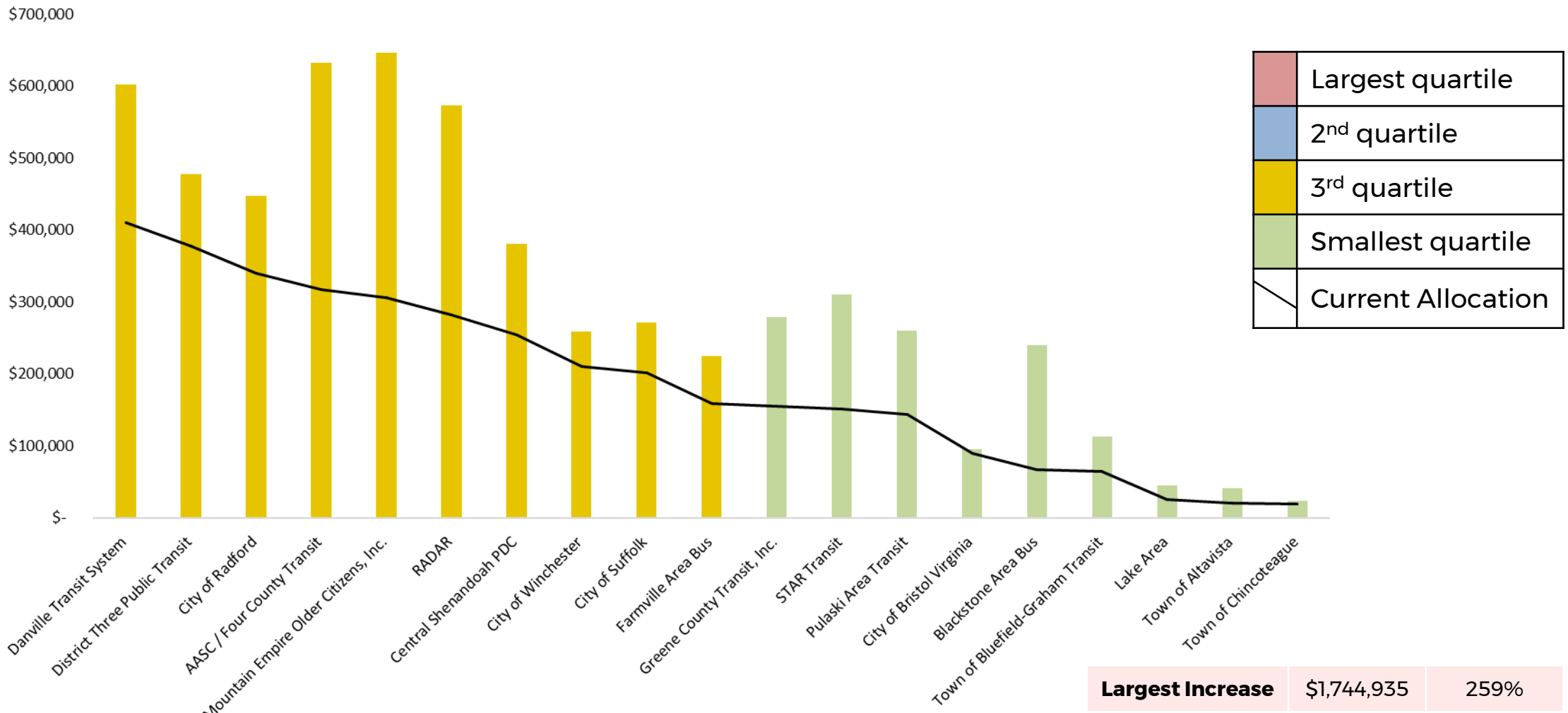


Largest Increase	$1,744,935	259%
Largest Decrease	($4,521,174)	(45%)

Scenario 2
33% Net Cost
33% Ridership
33% Rev Miles

Scenario 2 – 3rd and 4th Quartile Agencies

Line is Current Allocation Method for FY19

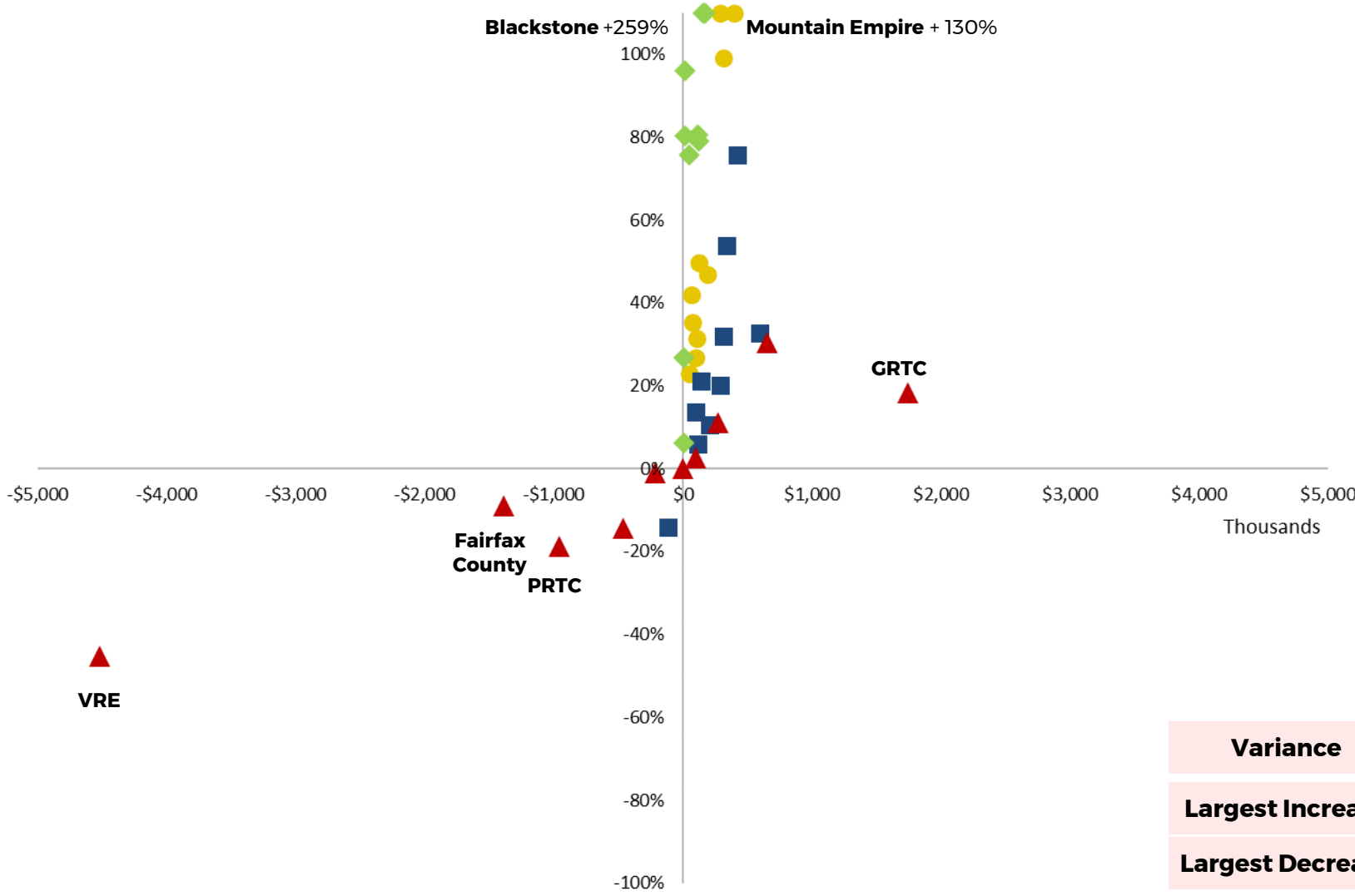


Largest Increase	$1,744,935	259%
Largest Decrease	($4,521,174)	(45%)

Scenario 2
33% Net Cost
33% Ridership
33% Rev Miles

Scenario 2

No Change is at Zero on the Axes



Largest quartile	
2nd quartile	
3rd quartile	
Smallest quartile	

Variance	0.280	
Largest Increase	$1,744,935	259%
Largest Decrease	($4,521,174)	(45%)

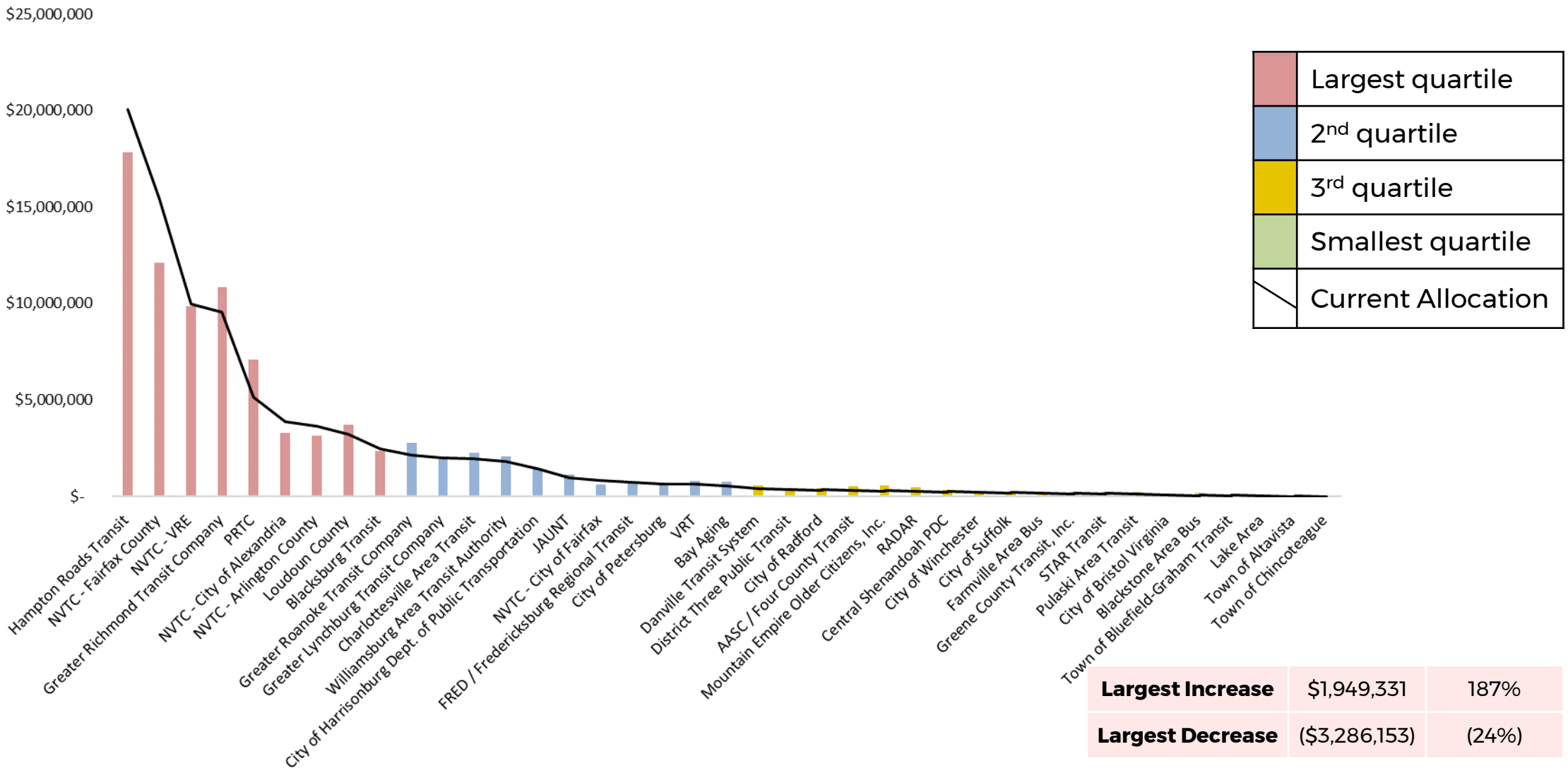
Scenario 3

25% Net Operating Cost
25% Ridership
25% Passenger Miles Traveled
25% Revenue Vehicle Miles

Scenario 3
25% Net Cost
25% Ridership
25% PMT
25% Rev Miles

Scenario 3 – All Agencies

Line is Current Allocation Method for FY19

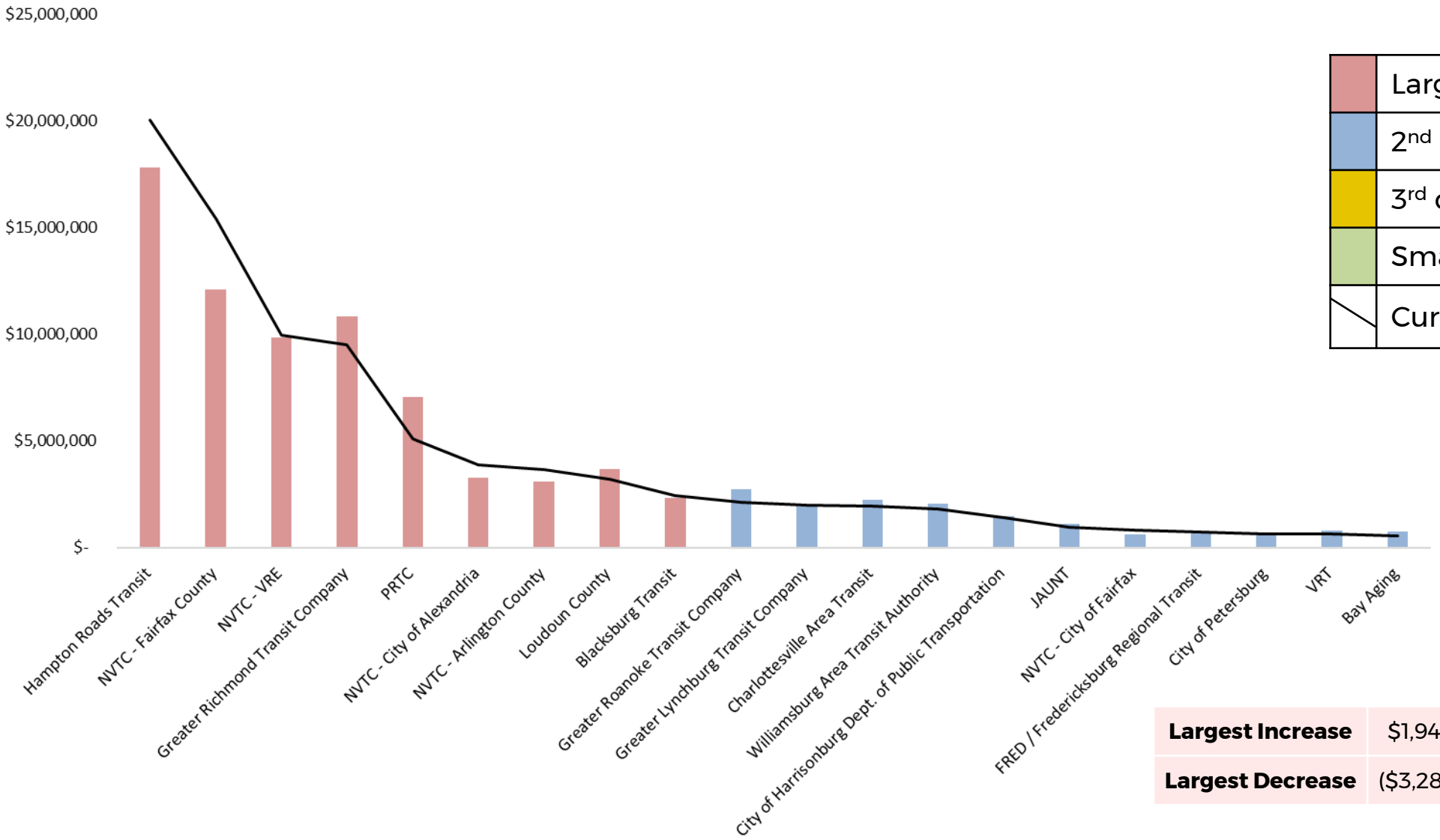


Largest Increase	$1,949,331	187%
Largest Decrease	($3,286,153)	(24%)

Scenario 3
25% Net Cost
25% Ridership
25% PMT
25% Rev Miles

Scenario 3 – 1st and 2nd Quartile Agencies

Line is Current Allocation Method for FY19

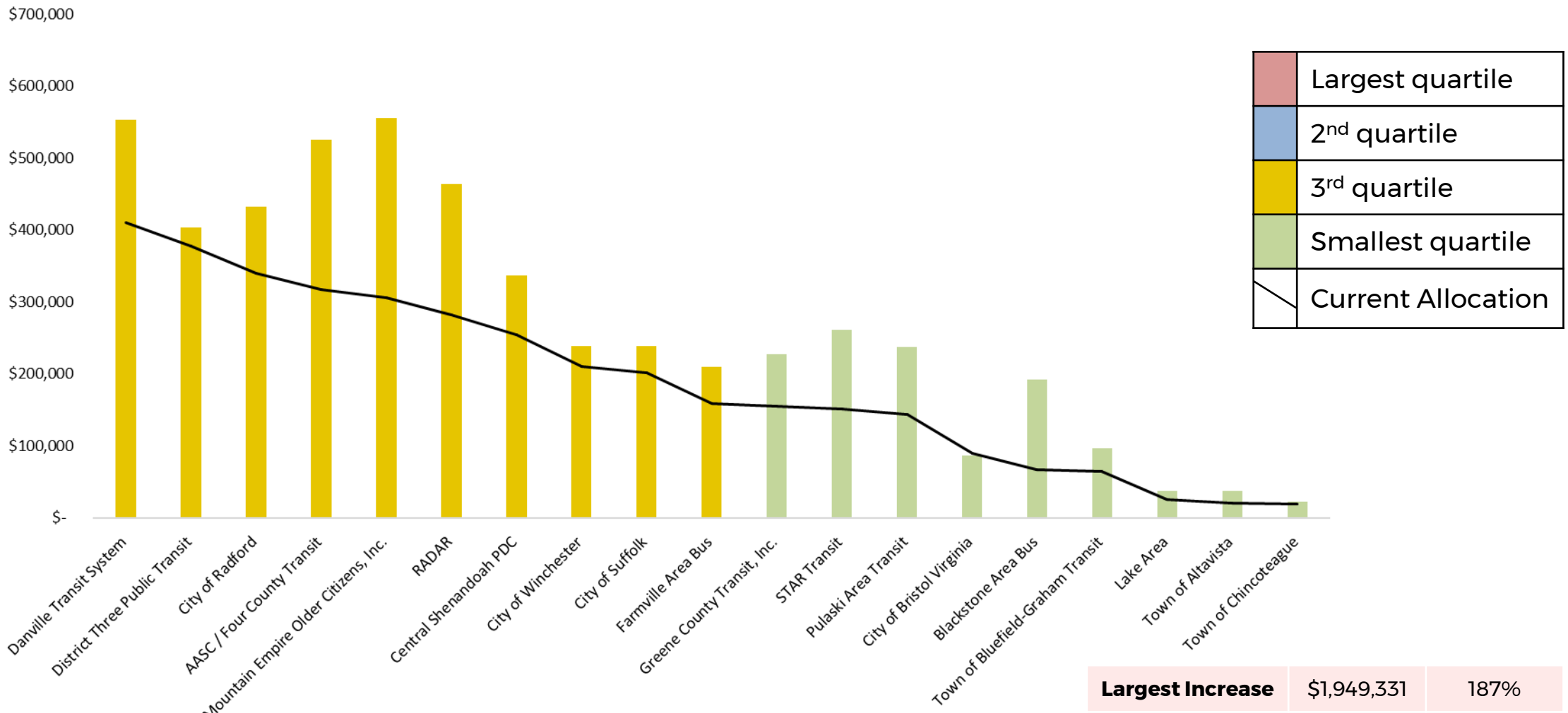


Largest Increase	$1,949,331	187%
Largest Decrease	($3,286,153)	(24%)

Scenario 3
25% Net Cost
25% Ridership
25% PMT
25% Rev Miles

Scenario 3 – 3rd and 4th Quartile Agencies

Line is Current Allocation Method for FY19

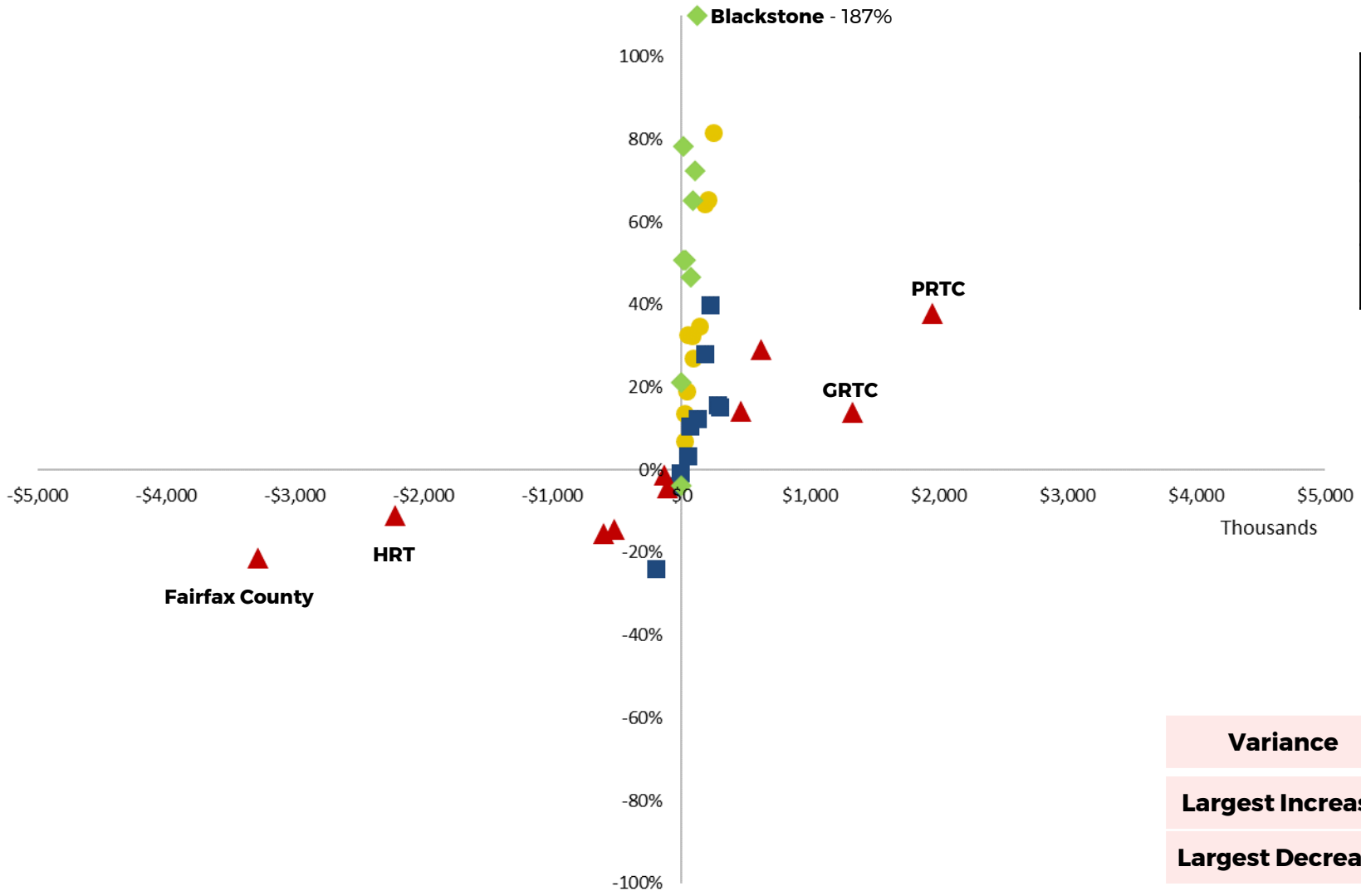


Largest Increase	$1,949,331	187%
Largest Decrease	($3,286,153)	(24%)

Scenario 3
25% Net Cost
25% Ridership
25% PMT
25% Rev Miles

Scenario 3

No Change is at Zero on the Axes



Largest quartile
2nd quartile
3rd quartile
Smallest quartile

Variance	0.144	
Largest Increase	$1,949,331	187%
Largest Decrease	($3,286,153)	(24%)

Summary

- Graphs indicate the options most similar to the current operating assistance allocation, which weighs cost more heavily

- Two analyses are presented:
  - *Percentage change of each agency's allocation compared to current allocation*
  - *Dollar change of each agency's allocation compared to current allocation*

Conclusions and Next Steps

- Some scenarios present significant changes in funding allocation compared to the current situation

- 1 scenario addresses 5 policy objectives with funding allocation most similar to the present allocation:
  - *Net Cost, Ridership, Revenue Miles*

- Discussion:
  - *Identification of preferred scenario*

- Next Steps (future meetings):
  - *Performance adjustment*
  - *Transition funding*

Appendix

Legislative Basis

House Bill 1539 of 2018

§ 33.2-1526.1. Use of the Commonwealth Mass Transit Fund.

A. All funds deposited pursuant to §§ 58.1-638, 58.1-638.3, 58.1-815.4, and 58.1-2289 into the Commonwealth Mass Transit Fund (the Fund), established pursuant to subdivision A 4 of § 58.1-638, shall be allocated as set forth in this section. …

C. Each year the Director of the Department of Rail and Public Transportation shall make recommendations to the Board for the allocation of funds from the Fund. Such recommendations, and the final allocations approved by the Board, shall adhere to the following:

1. ***Thirty-one percent of the funds shall be allocated to support operating costs of transit providers and shall be distributed by the Board on the basis of service delivery factors, based on effectiveness and efficiency as established by the Board. Such measures and their relative weight shall be evaluated every three years and, if redefined by the Board, shall be published and made available for public comment at least one year in advance of being applied.*** *The Washington Metropolitan Area Transit Authority(WMATA) shall not be eligible for an allocation of funds pursuant to this subdivision.*

Passenger Miles Traveled (PMT) - Calculation

- Not all agencies report PMT to NTD
- To estimate PMT for non-reporting agencies, data from reporting agencies was used to calculate an average PMT per Rider value
  - *PRTC, Loudon County, and VRE were excluded because they are significant outliers*
  - *Since the most recent data was from 2016, PMT data was adjusted to a 2017 estimate based on the change in ridership for each agency from 16-17*
- The average PMT per Rider was multiplied by agencies' 2017 ridership to estimate the total PMT of non-reporting agencies

Scenario 2+
Separate funding pool for Commuter Rail

Recognizing the specific performance of commuter rail, a separate funding pool is created

- Based on share of commuter rail Passenger Miles Traveled, Revenue Vehicle Hours and Revenue Vehicle Miles relative to statewide totals
- Based on current statistics, commuter rail funding pool would equal 10.9% of total revenue available

	Percentages	Total Revenue	Commuter Rail Share
PMT	33%	. $30,198,544	$8,284,370.56
RVH	33%	$30,198,544	$471,680.47
RVM	33%	$30,198,544	$1,097,007.01
Total	100%	$90,595,632	$9,853,058.04
		Percentage Share	10.9%

- VRE allocation in FY19 was 11% of total revenue available
- Performance-adjustment factors would be applied to calculate VRE's final allocation

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Remainder of funds distributed to all other agencies consistent with Scenario 2

— 33% Net Operating Cost

— 33% Ridership

— 33% Revenue Vehicle Miles

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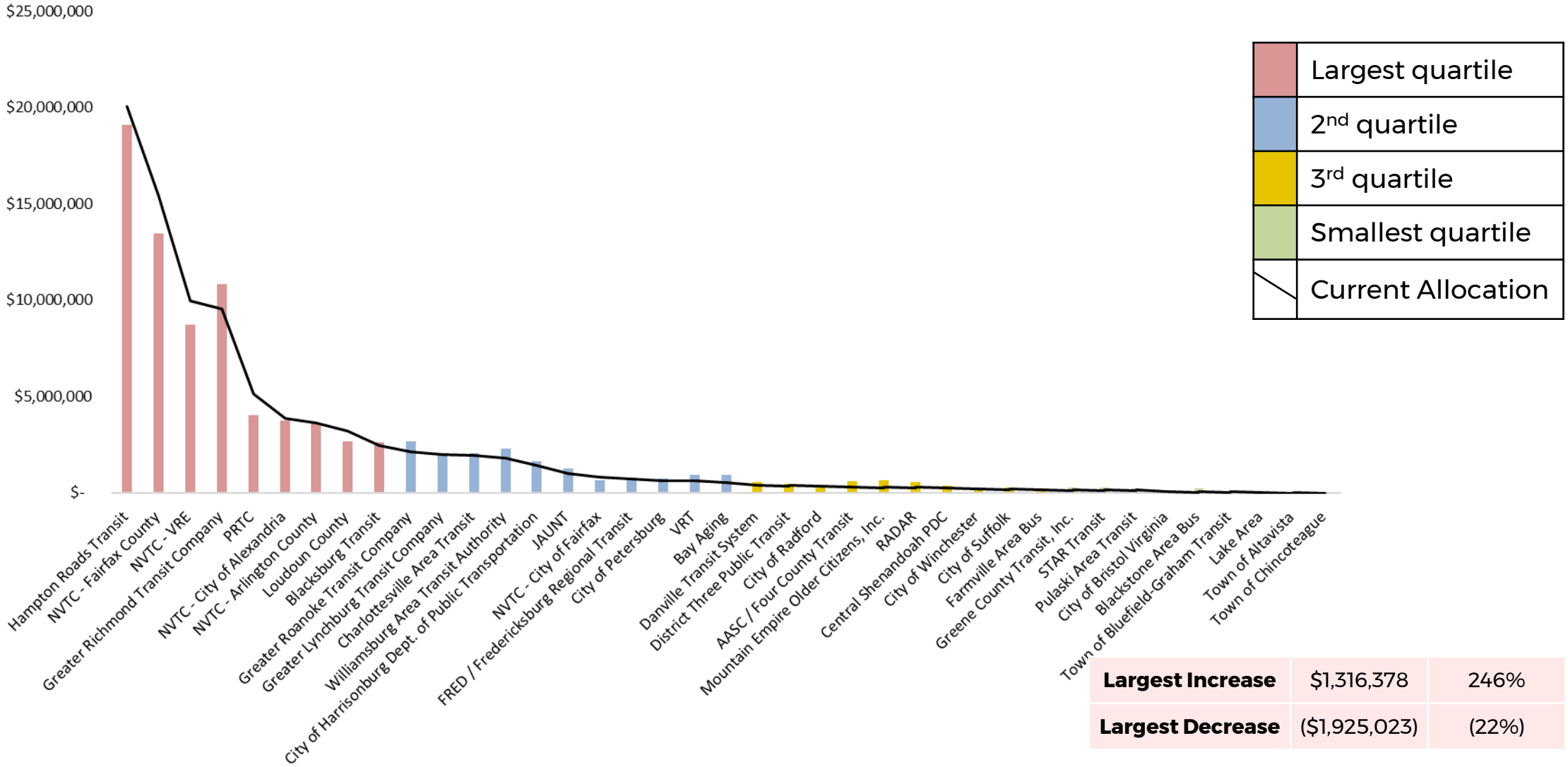
Pooling Scenario
33% Net Cost
33% Ridership
33% Rev Miles

Pooling Scenario – Separate Commuter Rail Pool

Line is Current Allocation Method for FY19

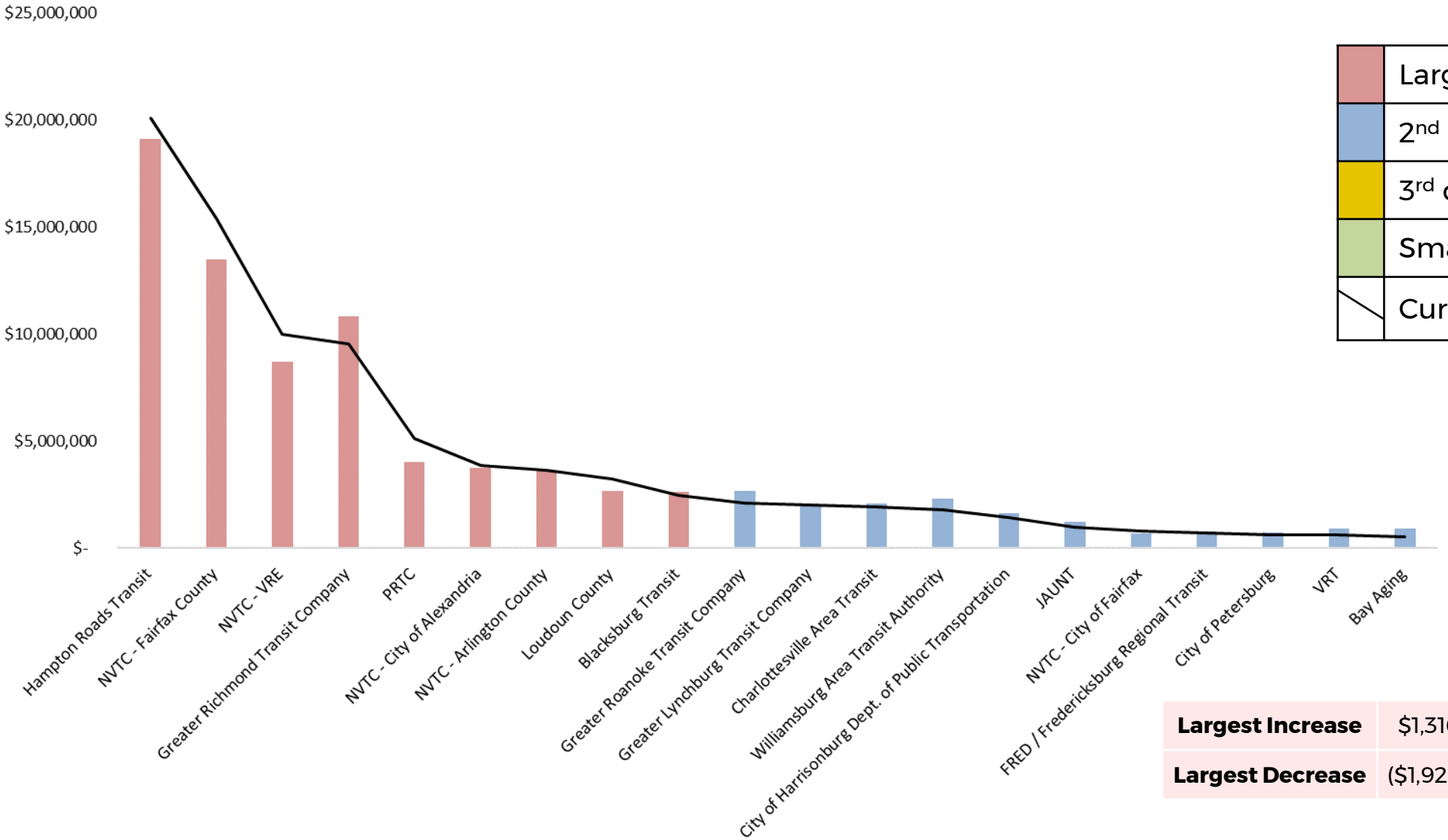


Largest Increase	$1,316,378	246%
Largest Decrease	($1,925,023)	(22%)

Pooling Scenario
33% Net Cost
33% Ridership
33% Rev Miles

Pooling Scenario – 1st and 2nd Quartile Agencies

Line is Current Allocation Method for FY19

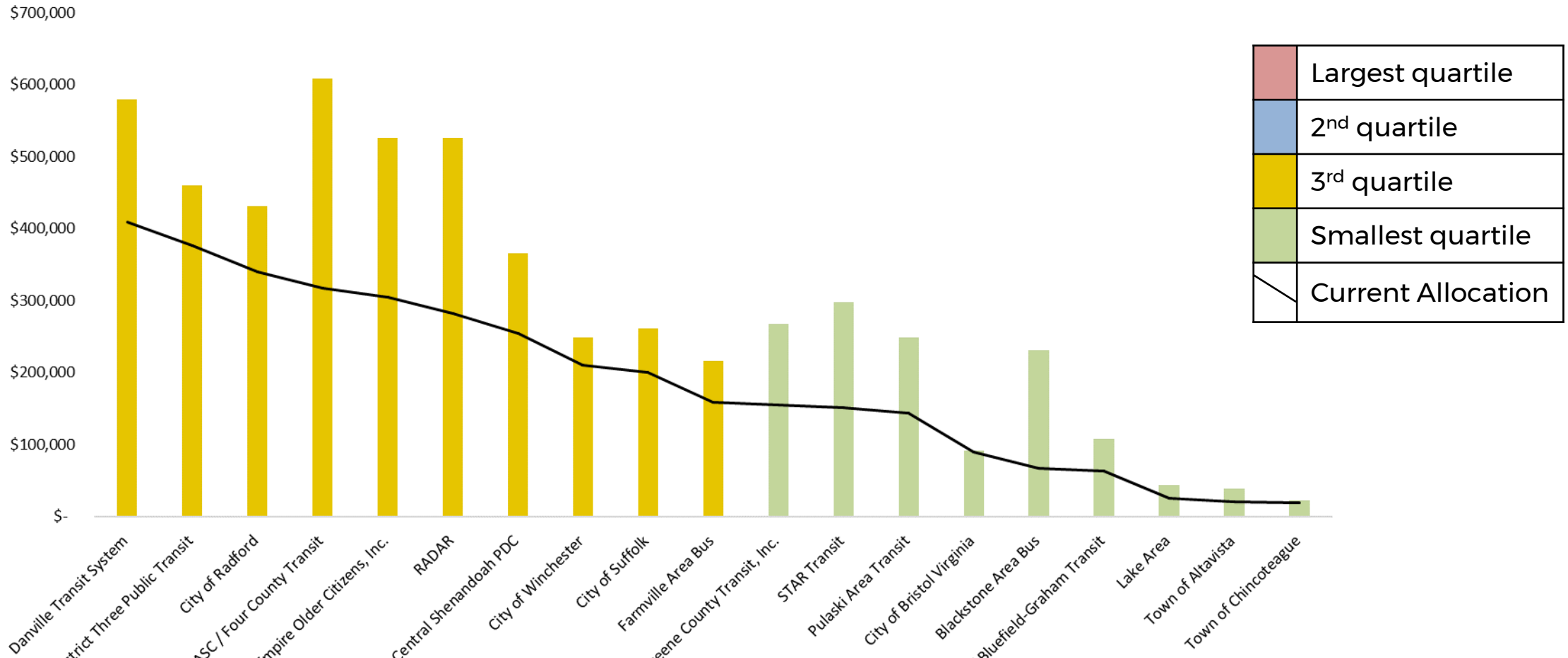


Largest Increase	$1,316,378	246%
Largest Decrease	($1,925,023)	(22%)

Pooling Scenario
33% Net Cost
33% Ridership
33% Rev Miles

Pooling Scenario – 3rd and 4th Quartile Agencies

Line is Current Allocation Method for FY19

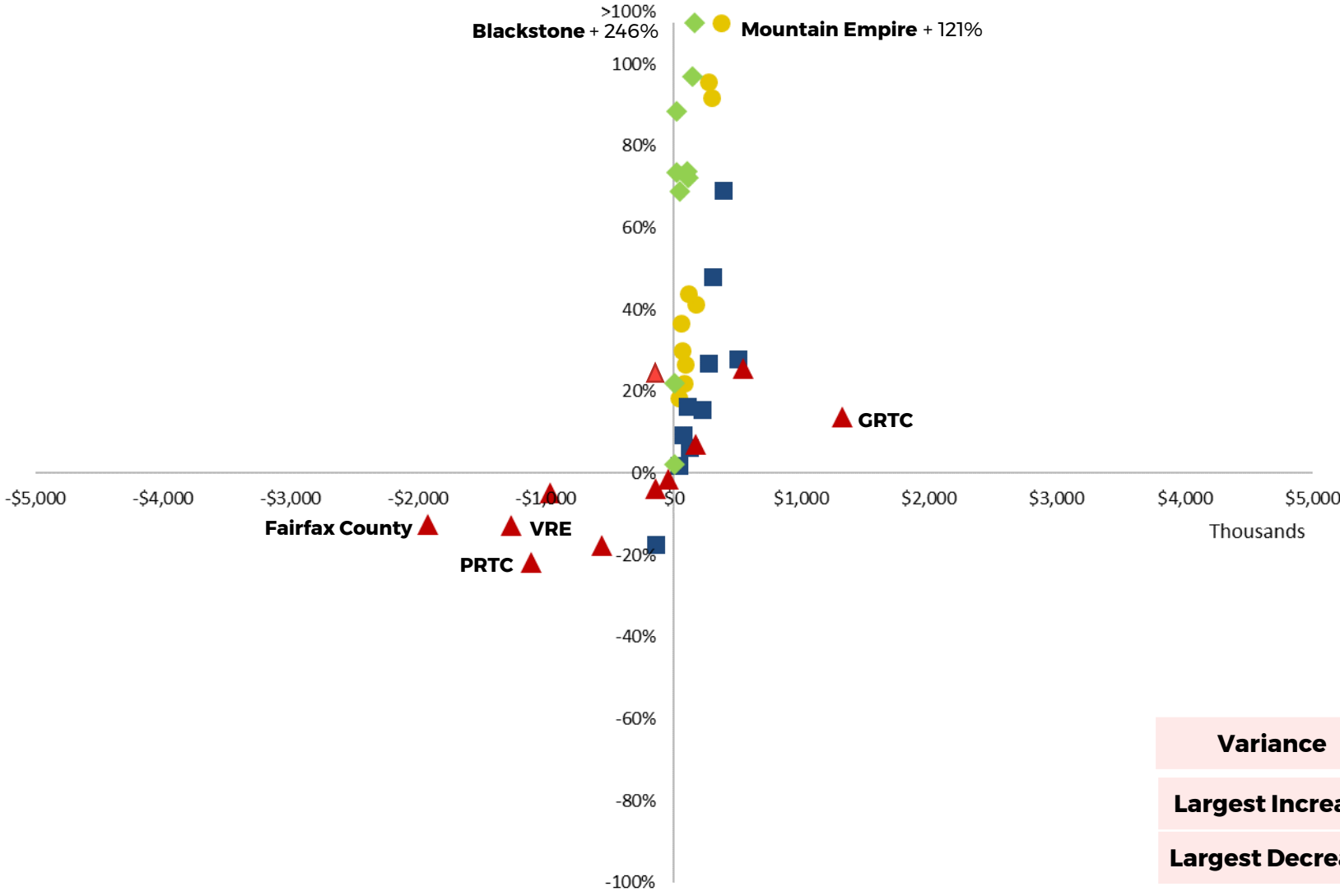


Largest Increase	$1,316,378	246%
Largest Decrease	($1,925,023)	(22%)

Pooling Scenario
33% Net Cost
33% Ridership
33% Rev Miles

Pooling Scenario – All Agencies

No Change is at Zero on the Axes



Largest quartile
2nd quartile
3rd quartile
Smallest quartile

Variance	0.247	
Largest Increase	$1,316,378	246%
Largest Decrease	($1,925,023)	(22%)