

Virginia Department of Rail &
Public Transportation

Operating Assistance Performance Metrics & Scenarios

Presentation

November 13, 2018



Agenda

- Potential Performance Metrics
- Performance Metrics Scenario Results
- Next Steps

Understanding Performance Metrics

- Performance metrics measure the performance of a transit agency with respect to:
 - *Agency's own performance*
 - *Statewide trends*
- Performance metrics are based on a 3-year rolling average to minimize volatility
- In contrast to sizing metrics, performance metrics can encompass ratios (e.g. cost per revenue vehicle hour) that do not reflect an agency's size

Current Performance Metrics Application

- 3 weighted metrics
 - *25% Passengers per Revenue Hour*
 - *25% Passengers per Revenue Mile*
 - *50% Net Cost Per Passenger*
- Currently applied only to performance funding share of operating assistance (approximately 1/3 of allocation)
- Future application to entire operating assistance allocation

Potential performance metrics

- Previous work has reviewed a series of potential performance metrics:
 - *Productivity:*
 - Passengers per Vehicle Revenue Hour/Mile (from OLGA)
 - Passenger Mile per Vehicle Revenue Mile (NTD only)
 - *Perceived Service Quality:*
 - On-Time Performance
 - Passenger Load Factor (potentially during peak period)

Additional performance metrics

- Operational performance:
 - *Cost per Revenue Vehicle Hour*
 - *Cost per Revenue Vehicle Mile*
 - *Operating Cost per Passenger (instead of Net Cost)*

Alignment of Performance Metrics with Policy Objectives

| Performance Metric | Promotes Fiscal Responsibility | Incentivizes Efficient Operations | Supports Robust Transit Service | Rewards Higher Patronage | Promotes Mobility | Supports Social Safety Net |
|---|--------------------------------|-----------------------------------|---------------------------------|--------------------------|-------------------|----------------------------|
| <i>On-Time Performance</i> | | ✓ | | | ✓ | |
| <i>Passenger Load Factor</i> | | ✓ | | ✓ | ✓ | |
| <i>Cost per Revenue Vehicle Hour</i> | ✓ | ✓ | | | | |
| <i>Passengers per Revenue Hour</i> | | | | ✓ | ✓ | |
| <i>Cost per Revenue Vehicle Mile</i> | ✓ | ✓ | | | | |
| <i>Passengers per Revenue Mile</i> | | | | ✓ | ✓ | |
| <i>Passenger Miles per Vehicle Revenue Mile</i> | | ✓ | ✓ | ✓ | ✓ | |
| <i>Net Cost Per Passenger</i> | ✓ | ✓ | | | | |
| <i>Operating Cost per Passenger</i> | ✓ | ✓ | | | | |

Alignment of Performance Metrics with Policy Objectives: Usable Options

| Performance Metric | Promotes Fiscal Responsibility | Incentivizes Efficient Operations | Supports Robust Transit Service | Rewards Higher Patronage | Promotes Mobility | Supports Social Safety Net | Data Exists for All Agencies |
|---|--------------------------------|-----------------------------------|---------------------------------|--------------------------|-------------------|----------------------------|------------------------------|
| <i>On-Time Performance</i> | | ✓ | | | ✓ | | |
| <i>Passenger Load Factor</i> | | ✓ | | ✓ | ✓ | | |
| <i>Cost per Revenue Vehicle Hour</i> | ✓ | ✓ | | | | | ✓ |
| <i>Passengers per Revenue Hour</i> | | | | ✓ | ✓ | | ✓ |
| <i>Cost per Revenue Vehicle Mile</i> | ✓ | ✓ | | | | | ✓ |
| <i>Passengers per Revenue Mile</i> | | | | ✓ | ✓ | | ✓ |
| <i>Passenger Miles per Vehicle Revenue Mile</i> | | ✓ | | ✓ | ✓ | | |
| <i>Net Cost Per Passenger</i> | ✓ | ✓ | | | | | ✓ |
| <i>Operating Cost per Passenger</i> | ✓ | ✓ | | | | | ✓ |

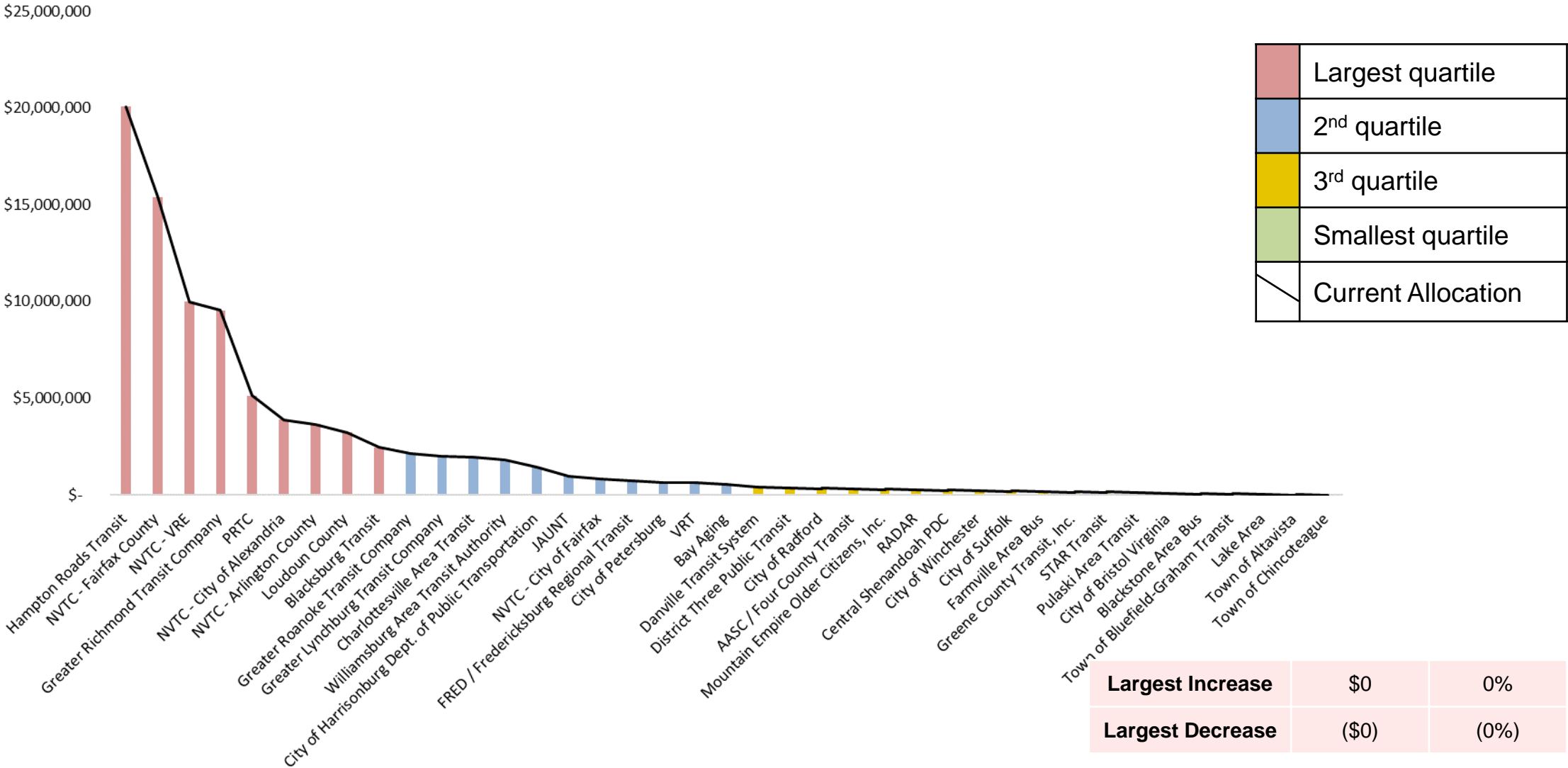
Scenarios Presented in this Document

- Start with Scenario C-Capped from TSDAC Sizing presentation:
 - *Sizing based on Operating Cost (50%), Ridership (30%), Revenue Hours and Revenue Miles (10% each)*
 - *Current performance adjustment metrics are used: Net Cost per Passenger (50%), Passengers per Revenue Hour and Passengers per Revenue Mile (25% each)*
- Introduce the following variations on performance metrics:
 - *Variation 1: replaces **Net Cost** per Passenger with **Operating Cost** per Passenger*
 - *Variation 2: replaces **Passengers** per Revenue Hour and Revenue Mile with **Cost** per Revenue Hour and Revenue Mile (25% each)*
 - *Variation 3: same as variation 2, but replaces **Net Cost** per Passenger with **Operating Cost** per Passenger*
 - *Variation 4: uses 5 metrics at 20% each (Passengers per Revenue Hour, Passengers per Revenue Mile, Cost per Revenue Hour, Cost per Revenue Mile and Operating Cost per Passenger)*

FY19 Actual Allocations (Traditional and Performance)

FY19 Actual Allocation of Operating Assistance to Virginia Transit Agencies

11



FY19 Actual Allocation of Operating Assistance: 1st and 2nd Quartile Agencies

\$25,000,000

\$20,000,000

\$15,000,000

\$10,000,000

\$5,000,000

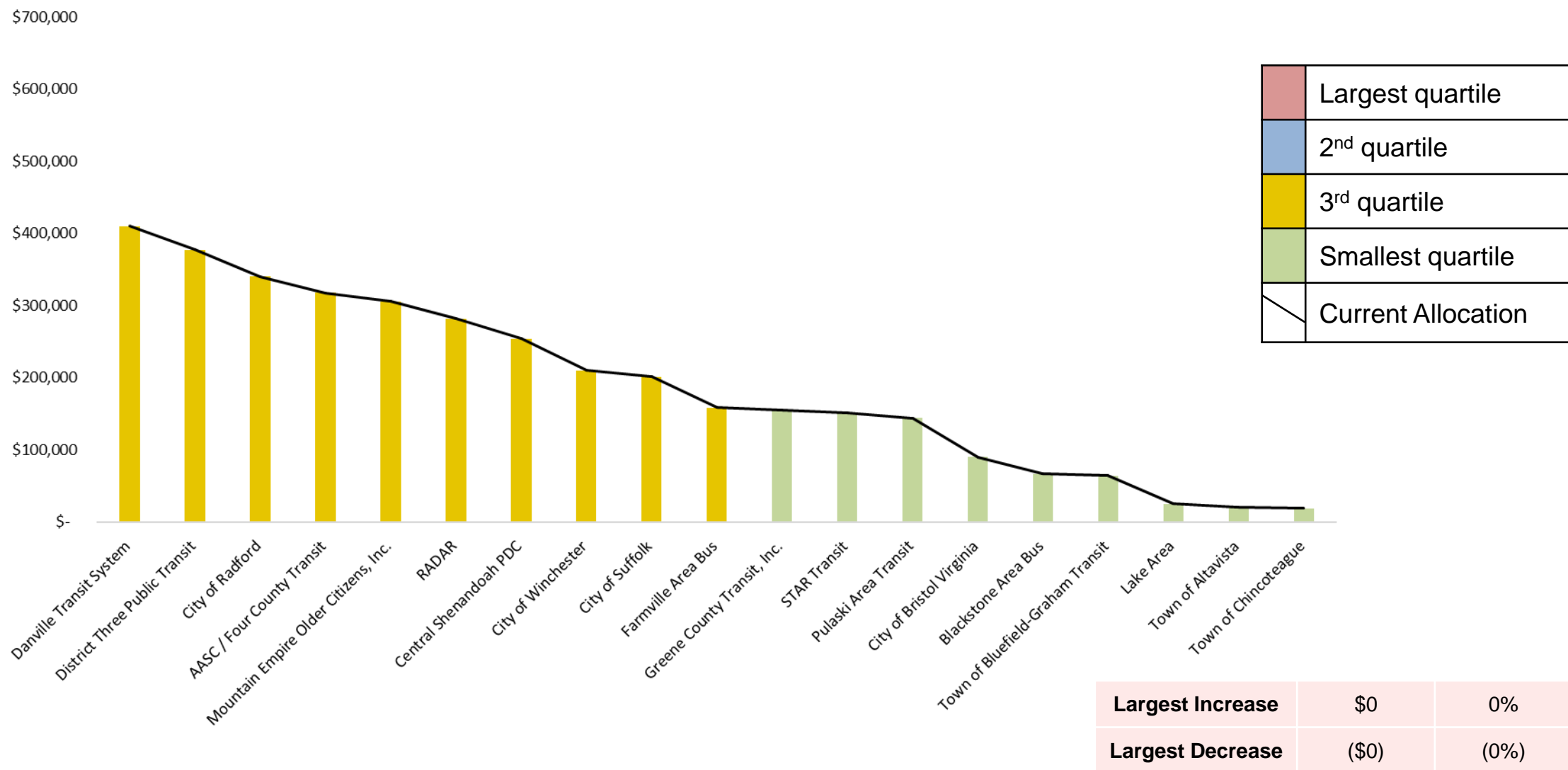
\$-

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



| | | |
|------------------|-------|------|
| Largest Increase | \$0 | 0% |
| Largest Decrease | (\$0) | (0%) |

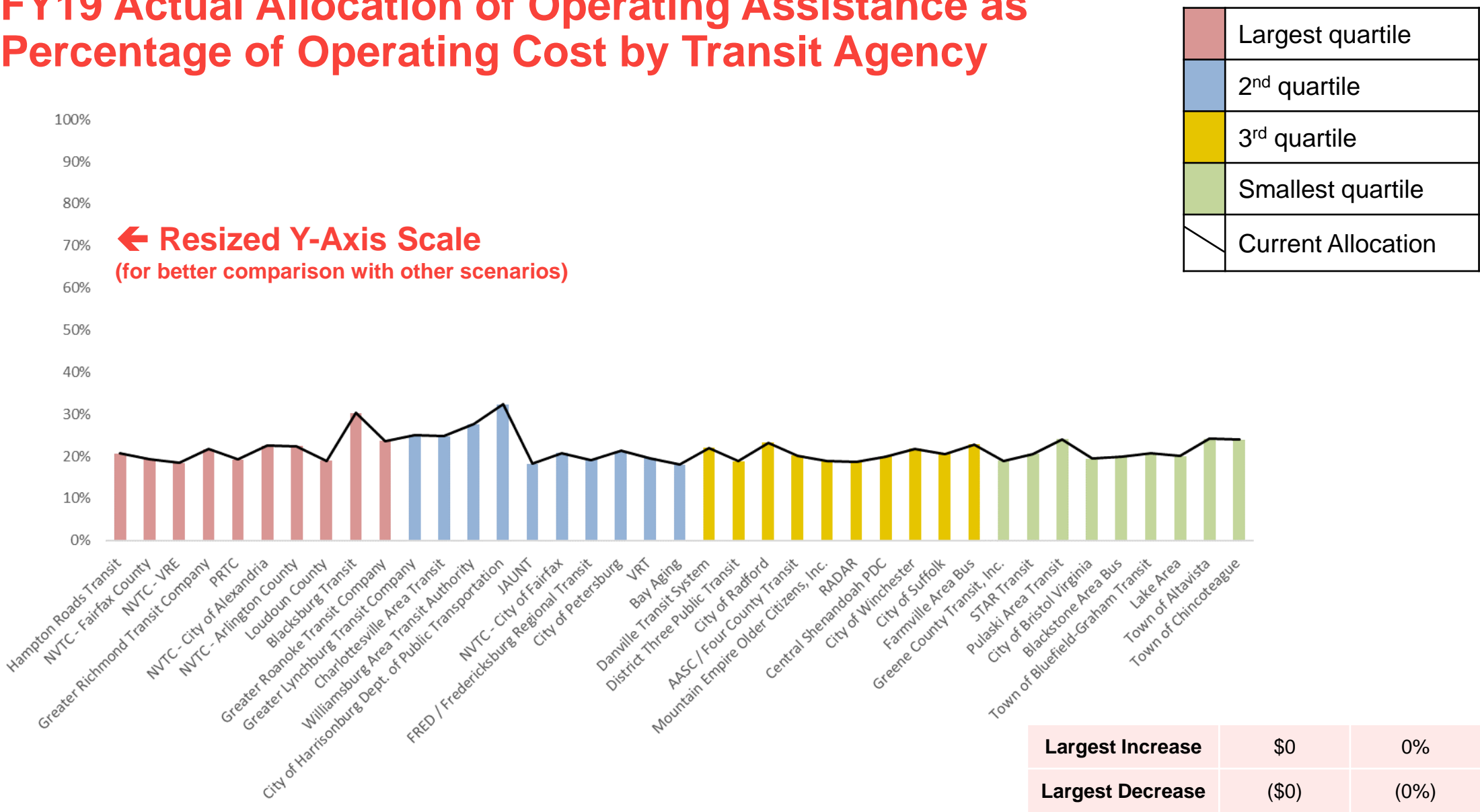
FY19 Actual Allocation of Operating Assistance: 3rd and 4th Quartile Agencies



14



FY19 Actual Allocation of Operating Assistance as Percentage of Operating Cost by Transit Agency



Scenarios

Allocation Scenarios

| Scenario Name | Pax / RVH | Pax / RVM | Net Cost / Pax | Cost / RVH | Cost / RVM | Cost / Pax |
|--------------------|-----------|-----------|----------------|------------|------------|------------|
| C-Capped | 25% | 25% | 50% | | | |
| Variation 1 | 25% | 25% | | | | 50% |
| Variation 2 | | | 50% | 25% | 25% | |
| Variation 3 | | | | 25% | 25% | 50% |
| Variation 4 | 20% | 20% | | 20% | 20% | 20% |

17

Scenario C-Capped

Performance Metrics:

25% Pax / RVH

25% Pax / RVM

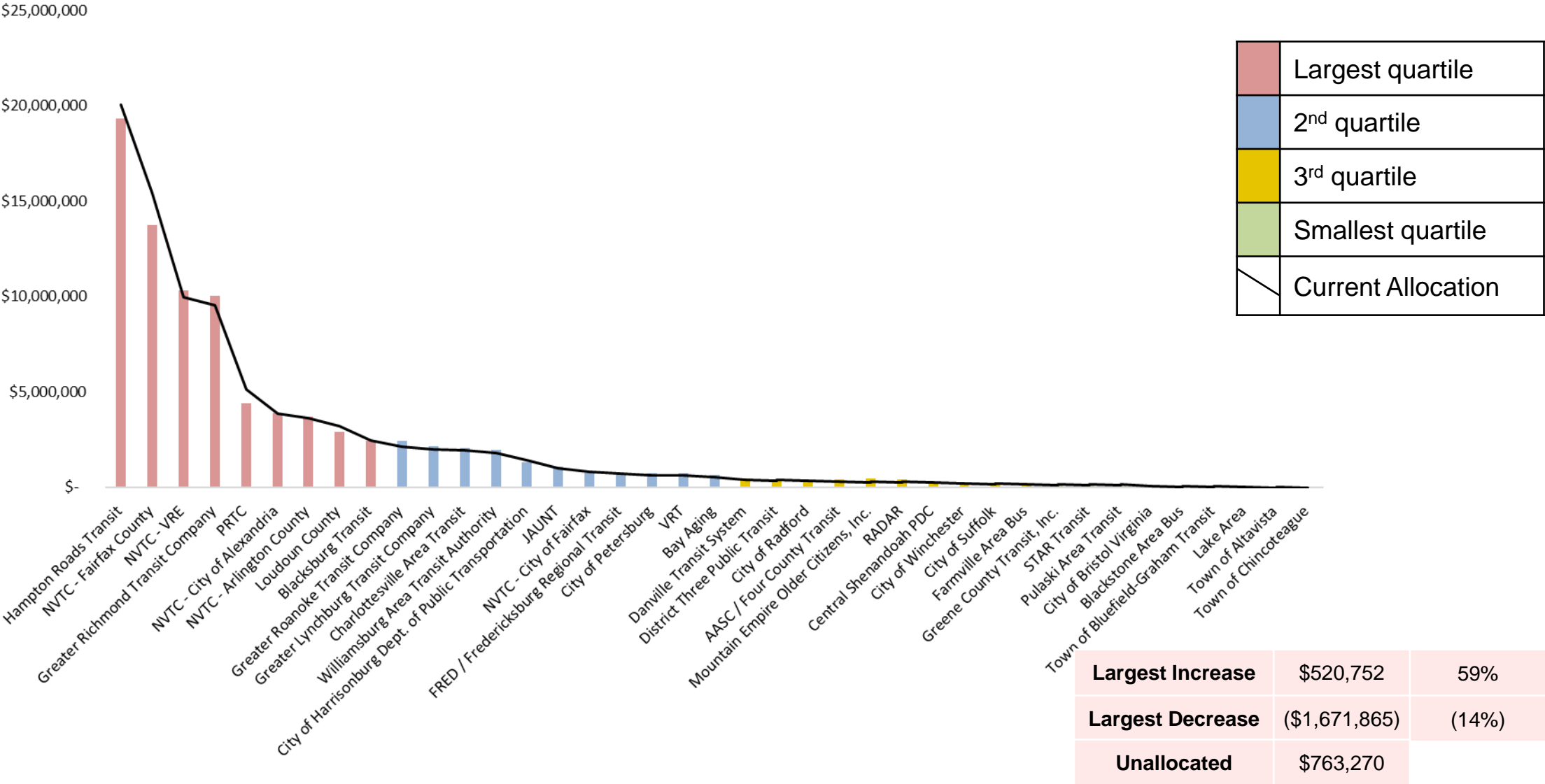
50 % Net Cost / Pax

Scenario C-Cap
25% Pax / RVH
25% Pax / RVM
50 % Net Cost /
Pax

Scenario C-Capped Projected Operating Assistance Allocations by Agency

Line is Current Allocation Method for FY19

19



Scenario C-Cap

25% Pax / RVH

25% Pax / RVM

50 % Net Cost / Pax

Scenario C-Capped Projected Operating Assistance Allocations:
1st and 2nd Quartile Agencies

Line is Current Allocation Method for FY19

\$25,000,000

\$20,000,000

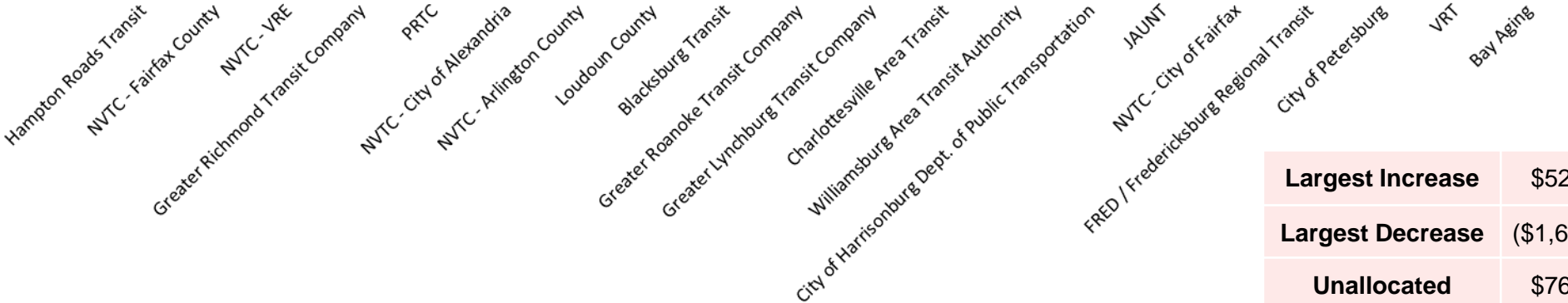
\$15,000,000

\$10,000,000

\$5,000,000

\$-

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

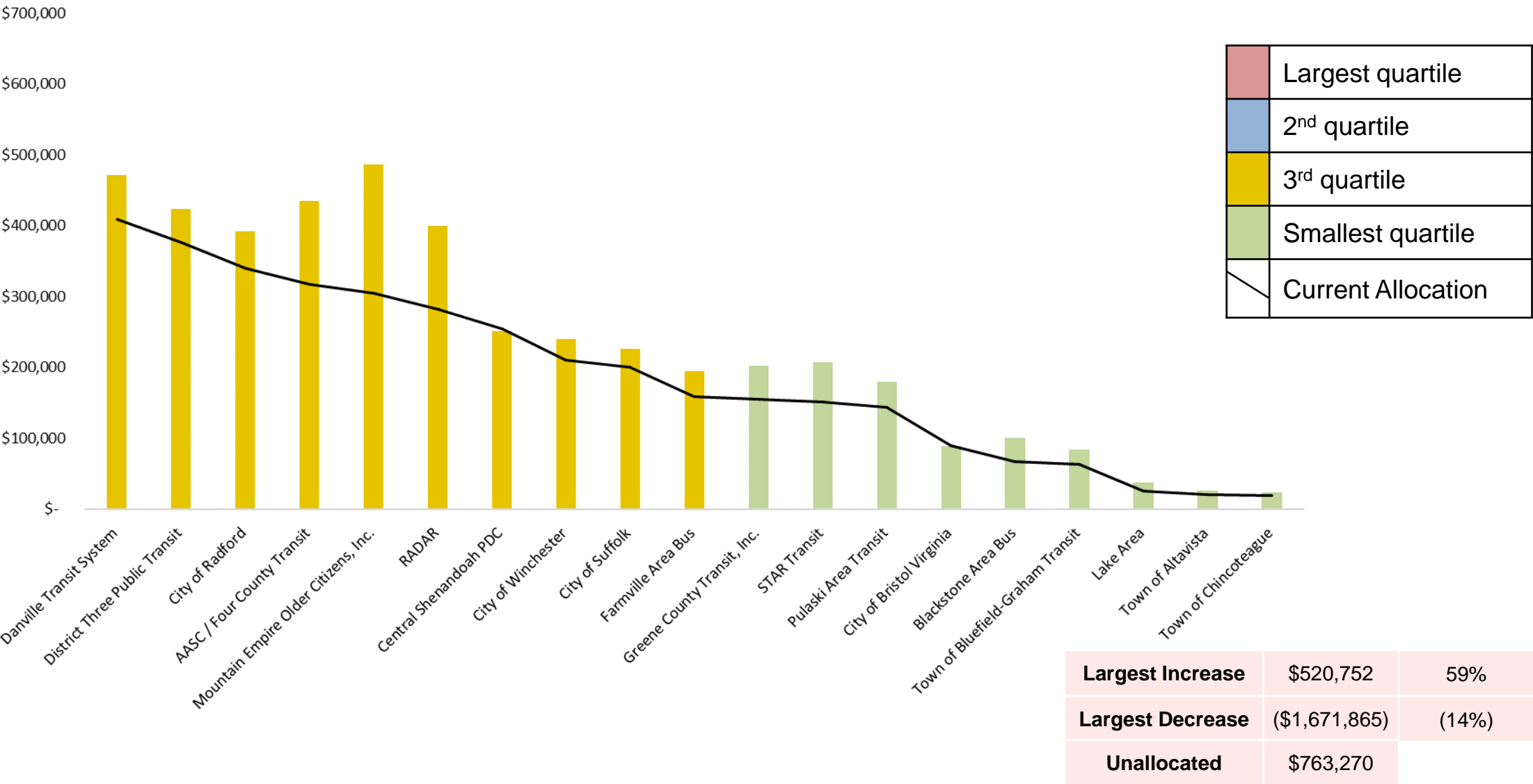


| | | |
|------------------|---------------|-------|
| Largest Increase | \$520,752 | 59% |
| Largest Decrease | (\$1,671,865) | (14%) |
| Unallocated | \$763,270 | |

Scenario C-Cap
25% Pax / RVH
25% Pax / RVM
50 % Net Cost /
Pax

Scenario C-Capped Projected Operating Assistance Allocations: 3rd and 4th Quartile Agencies

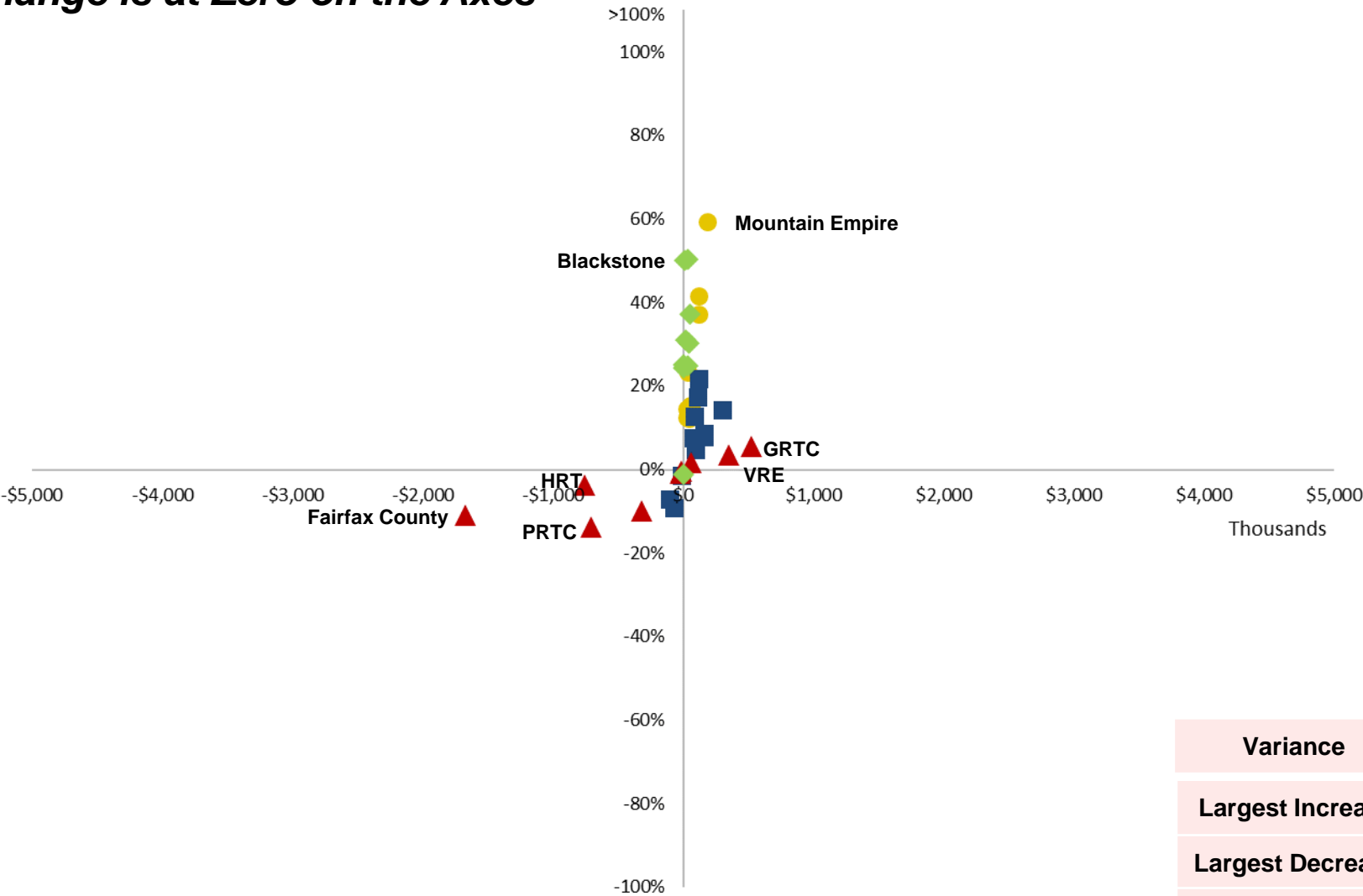
Line is Current Allocation Method for FY19



Scenario C-Cap
25% Pax / RVH
25% Pax / RVM
50 % Net Cost /
Pax

Scenario C-Capped Projected Variance from Actual FY19 Operating Assistance Allocation by Agency

No Change is at Zero on the Axes



| | |
|--|--------------------------|
| | Largest quartile |
| | 2 nd quartile |
| | 3 rd quartile |
| | Smallest quartile |

| | | |
|------------------|---------------|-------|
| Variance | 0.032 | |
| Largest Increase | \$520,752 | 59% |
| Largest Decrease | (\$1,671,865) | (14%) |
| Unallocated | \$763,270 | |

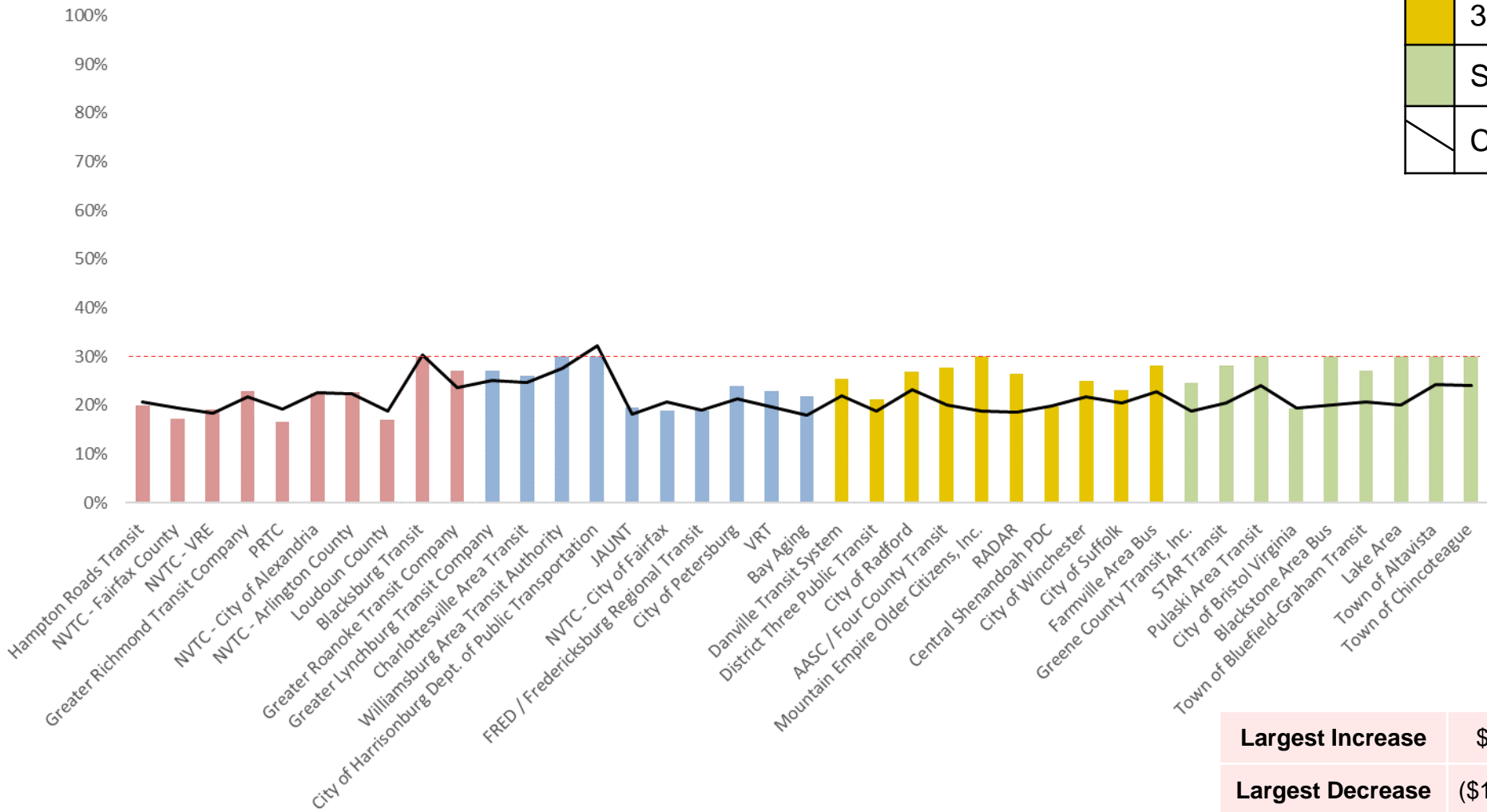
Scenario C-Cap
25% Pax / RVH
25% Pax / RVM
50 % Net Cost /
Pax

Scenario C-Capped Operating Assistance as % of Operating Cost by Agency

Line is Current Allocation Method for FY19

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

23



| | | |
|------------------|---------------|-------|
| Largest Increase | \$520,752 | 59% |
| Largest Decrease | (\$1,671,865) | (14%) |
| Unallocated | \$763,270 | |

Variation 1

Performance Metrics:

25% Pax / RVH

25% Pax / RVM

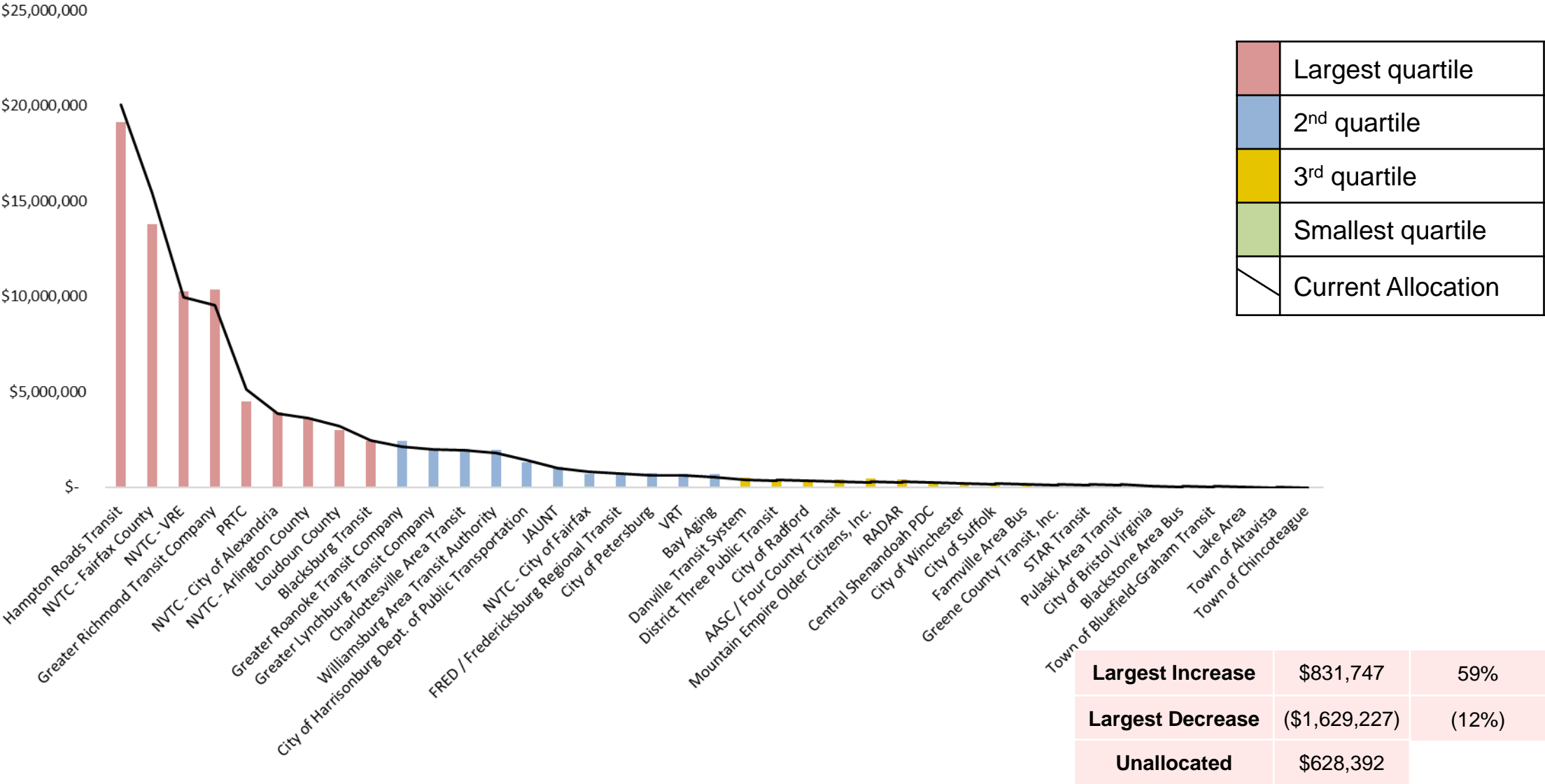
50 % Op Cost / Pax

Variation 1
25% Pax / RVH
25% Pax / RVM
50 % Cost / Pax

Variation 1 - Projected Operating Assistance Allocations by Agency

Line is Current Allocation Method for FY19

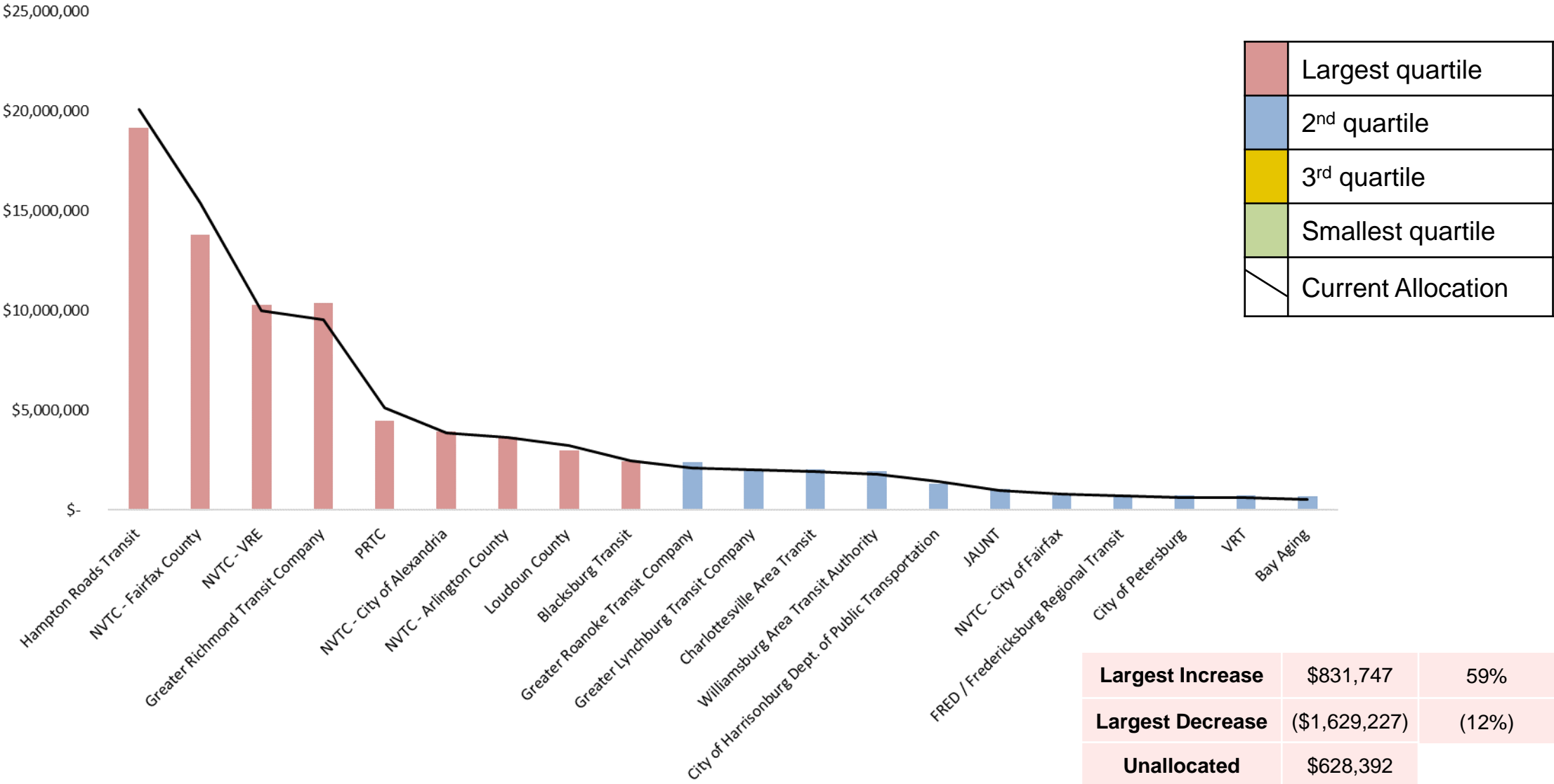
25



Variation 1
25% Pax / RVH
25% Pax / RVM
50 % Cost / Pax

Variation 1 - Projected Operating Assistance Allocations: 1st and 2nd Quartile Agencies

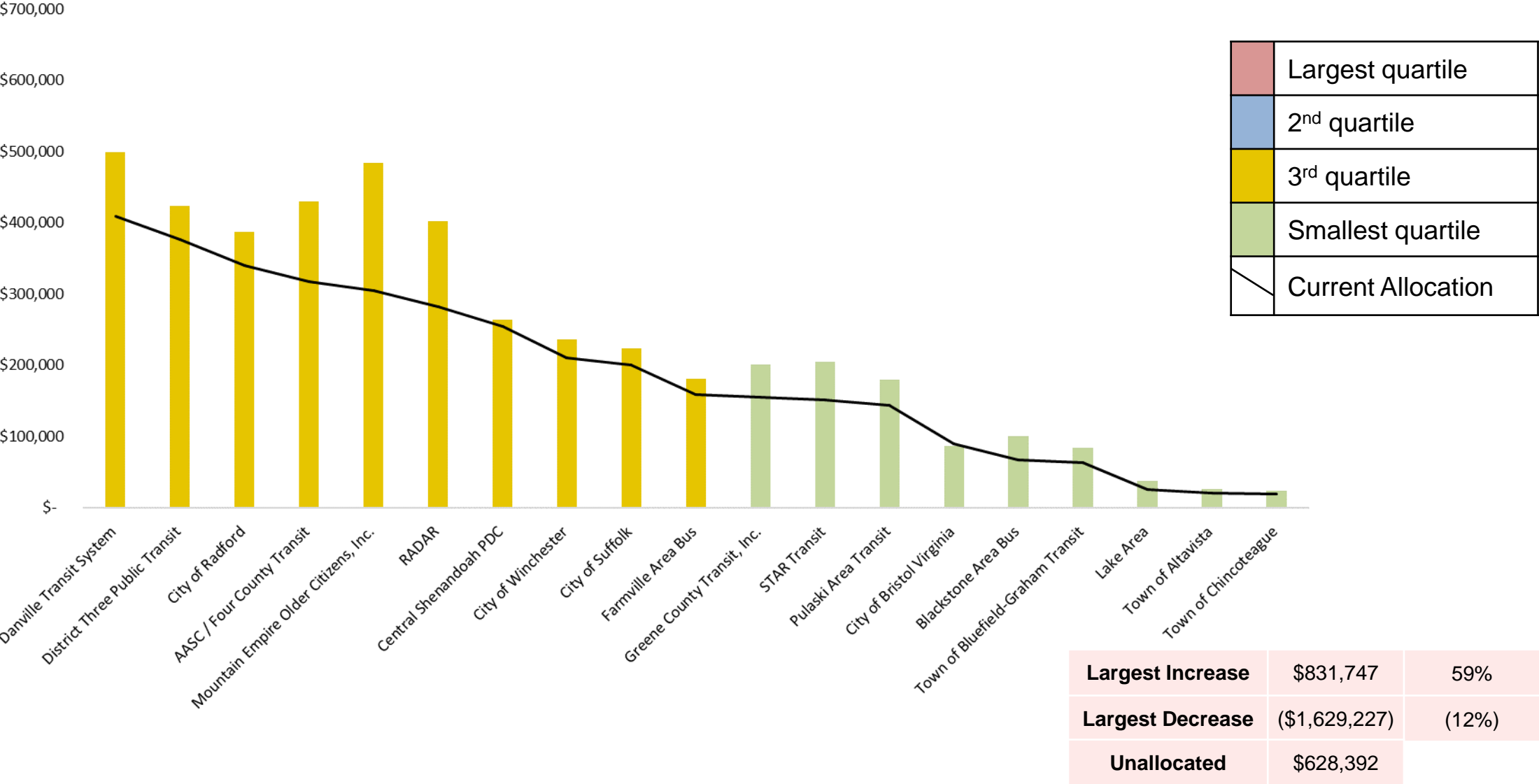
Line is Current Allocation Method for FY19



Variation 1
25% Pax / RVH
25% Pax / RVM
50 % Cost / Pax

Variation 1 - Projected Operating Assistance Allocations: 3rd and 4th Quartile Agencies

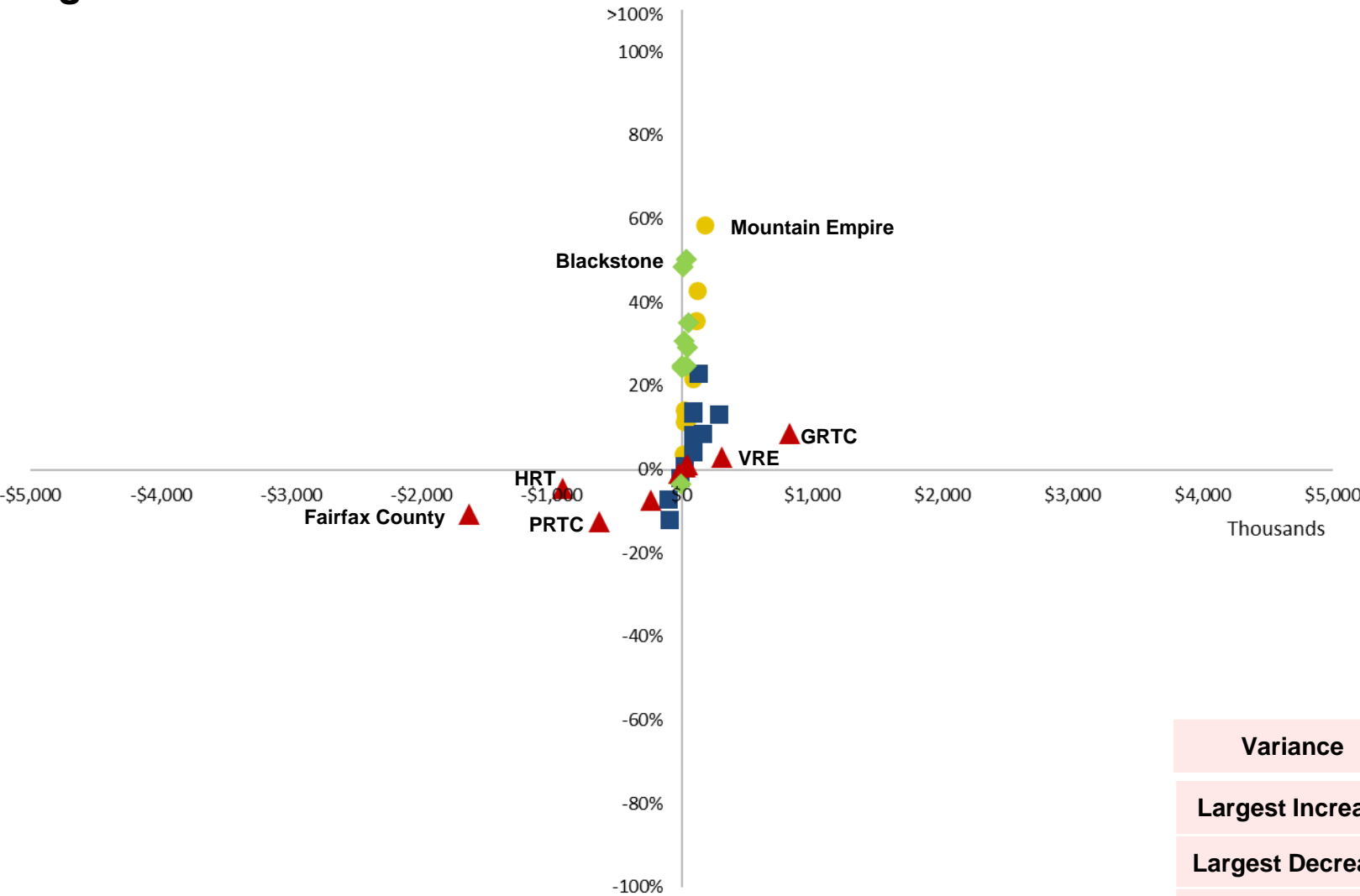
Line is Current Allocation Method for FY19



Variation 1
25% Pax / RVH
25% Pax / RVM
50 % Cost / Pax

Variation 1 - Projected Variance from Actual FY19 Operating Assistance Allocation by Agency

No Change is at Zero on the Axes



| | |
|--|--------------------------|
| | Largest quartile |
| | 2 nd quartile |
| | 3 rd quartile |
| | Smallest quartile |

| | | |
|------------------|---------------|-------|
| Variance | 0.031 | |
| Largest Increase | \$831,747 | 59% |
| Largest Decrease | (\$1,629,227) | (12%) |
| Unallocated | \$628,392 | |

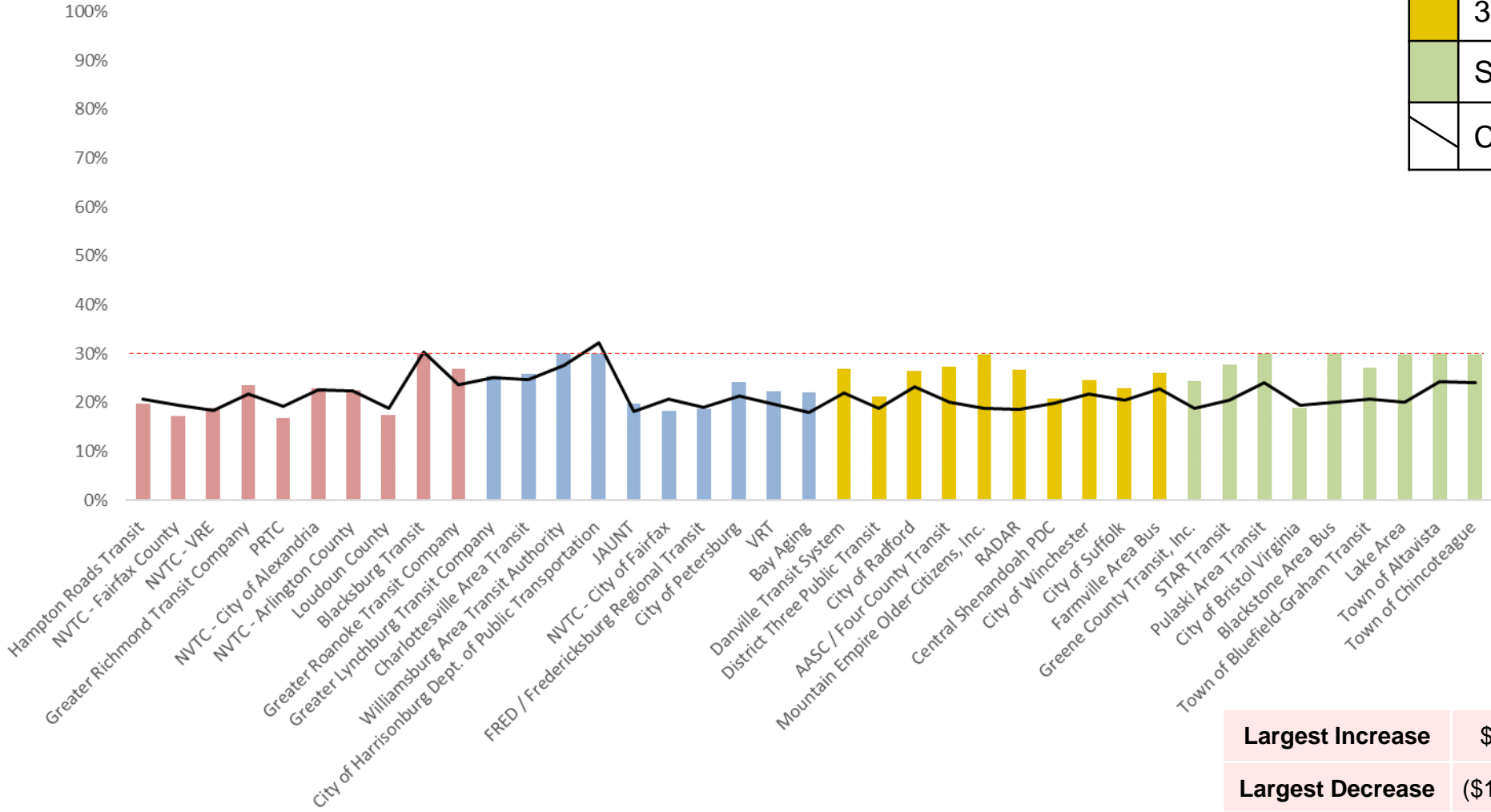
Variation 1
25% Pax / RVH
25% Pax / RVM
50 % Cost / Pax

Variation 1 - Operating Assistance as % of Operating Cost by Agency

Line is Current Allocation Method for FY19

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

29



| | | |
|------------------|---------------|-------|
| Largest Increase | \$831,747 | 59% |
| Largest Decrease | (\$1,629,227) | (12%) |
| Unallocated | \$628,392 | |

Variation 2

Performance Metrics:

25% Op Cost / RVH

25% Op Cost / RVM

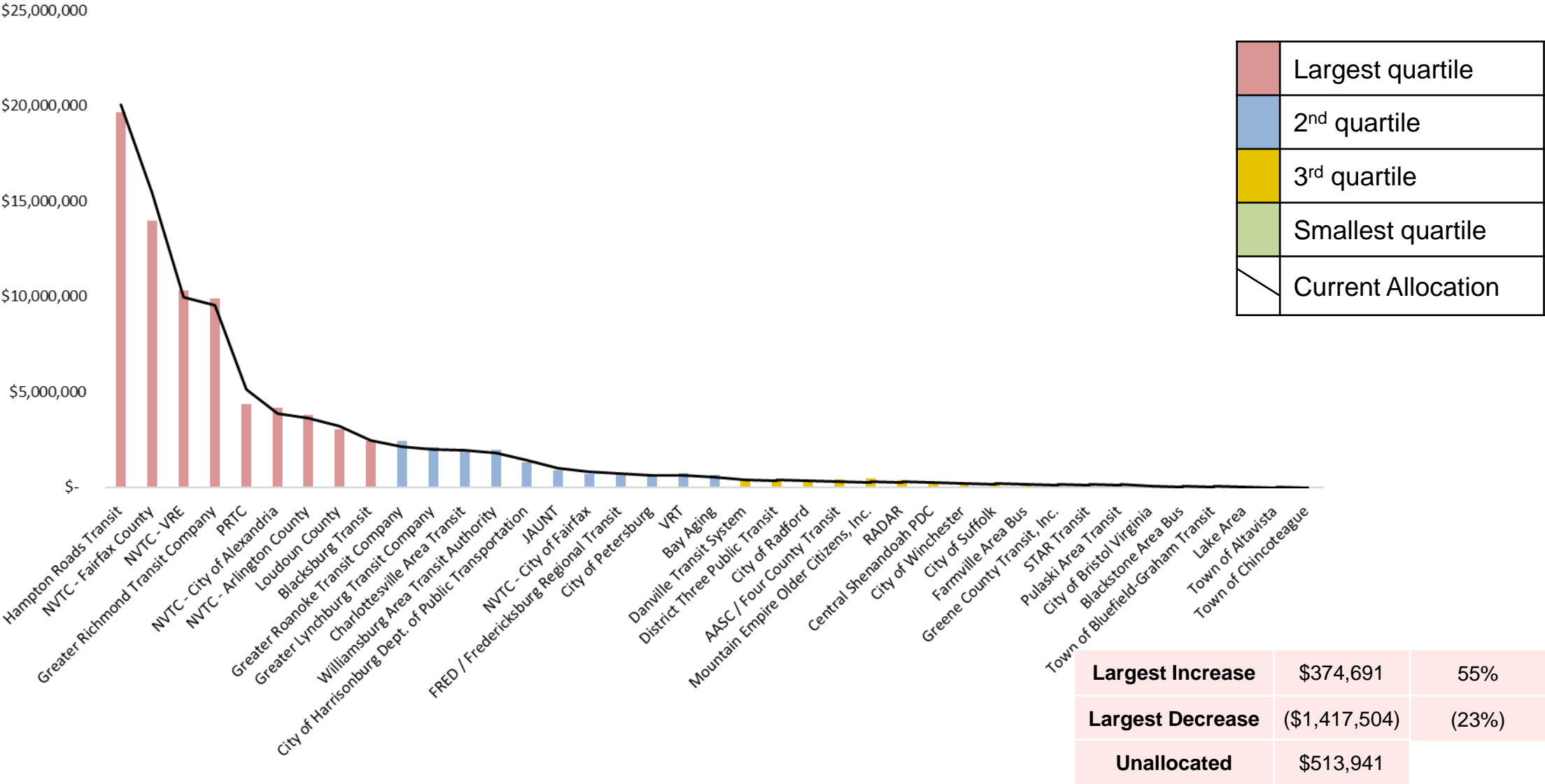
50 % Net Cost / Pax

Variation 2
25% Cost / RVH
25% Cost / RVM
50 % Net Cost /
Pax

Variation 2 - Projected Operating Assistance Allocations by Agency

Line is Current Allocation Method for FY19

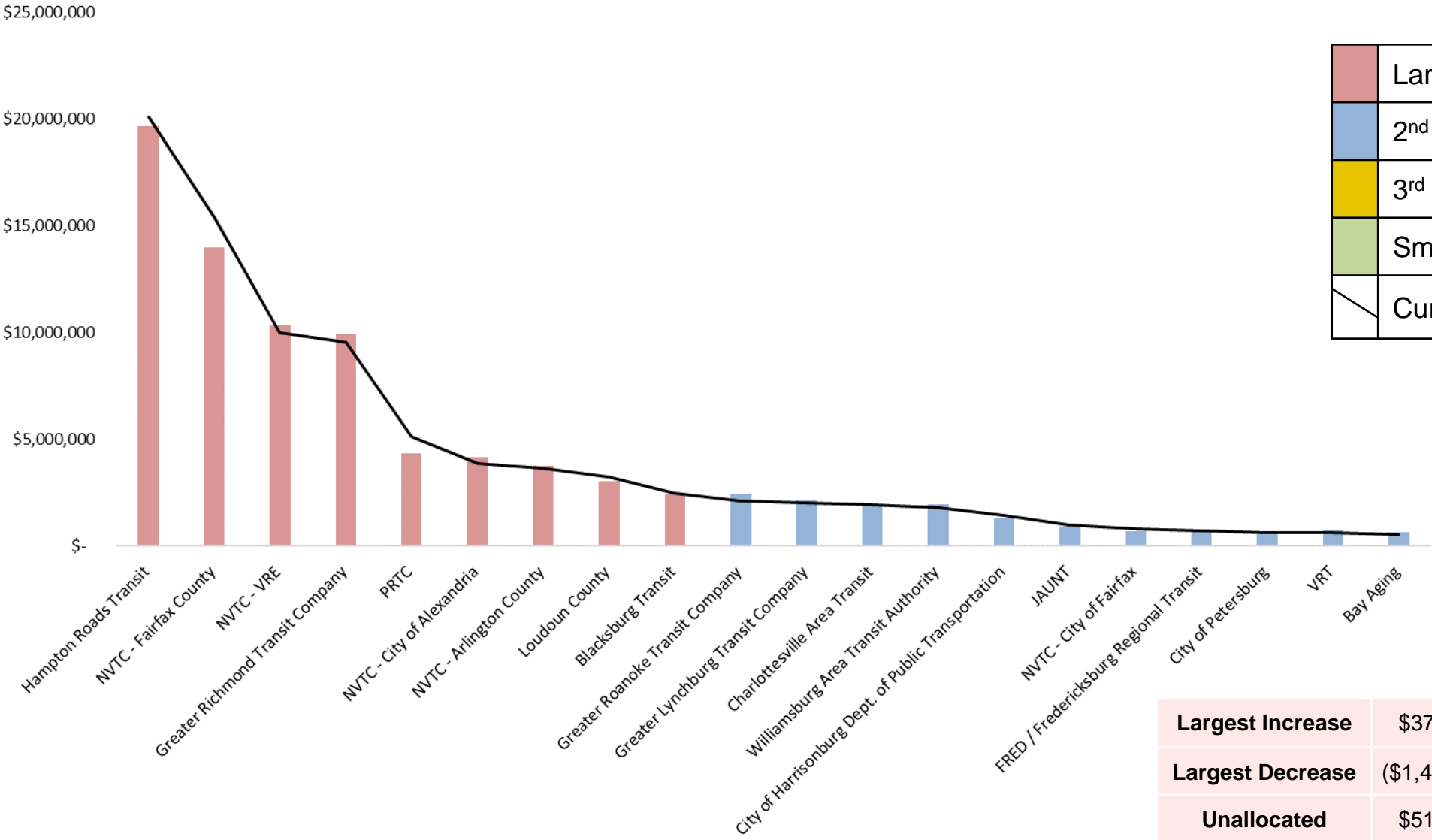
31



Variation 2
25% Cost / RVH
25% Cost / RVM
50 % Net Cost / Pax

Variation 2 - Projected Operating Assistance Allocations: 1st and 2nd Quartile Agencies

Line is Current Allocation Method for FY19

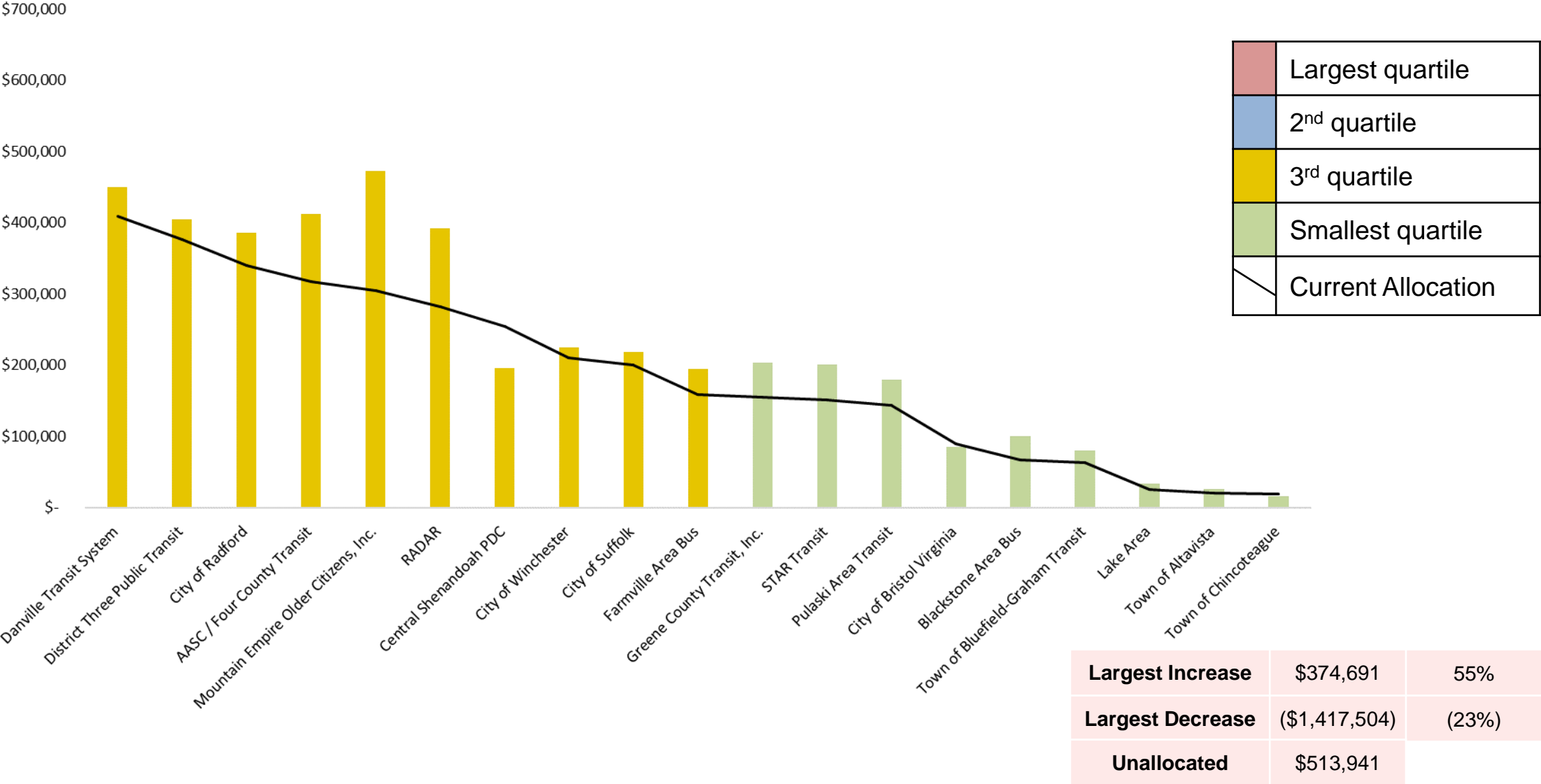


| | | |
|------------------|---------------|-------|
| Largest Increase | \$374,691 | 55% |
| Largest Decrease | (\$1,417,504) | (23%) |
| Unallocated | \$513,941 | |

Variation 2
25% Cost / RVH
25% Cost / RVM
50 % Net Cost /
Pax

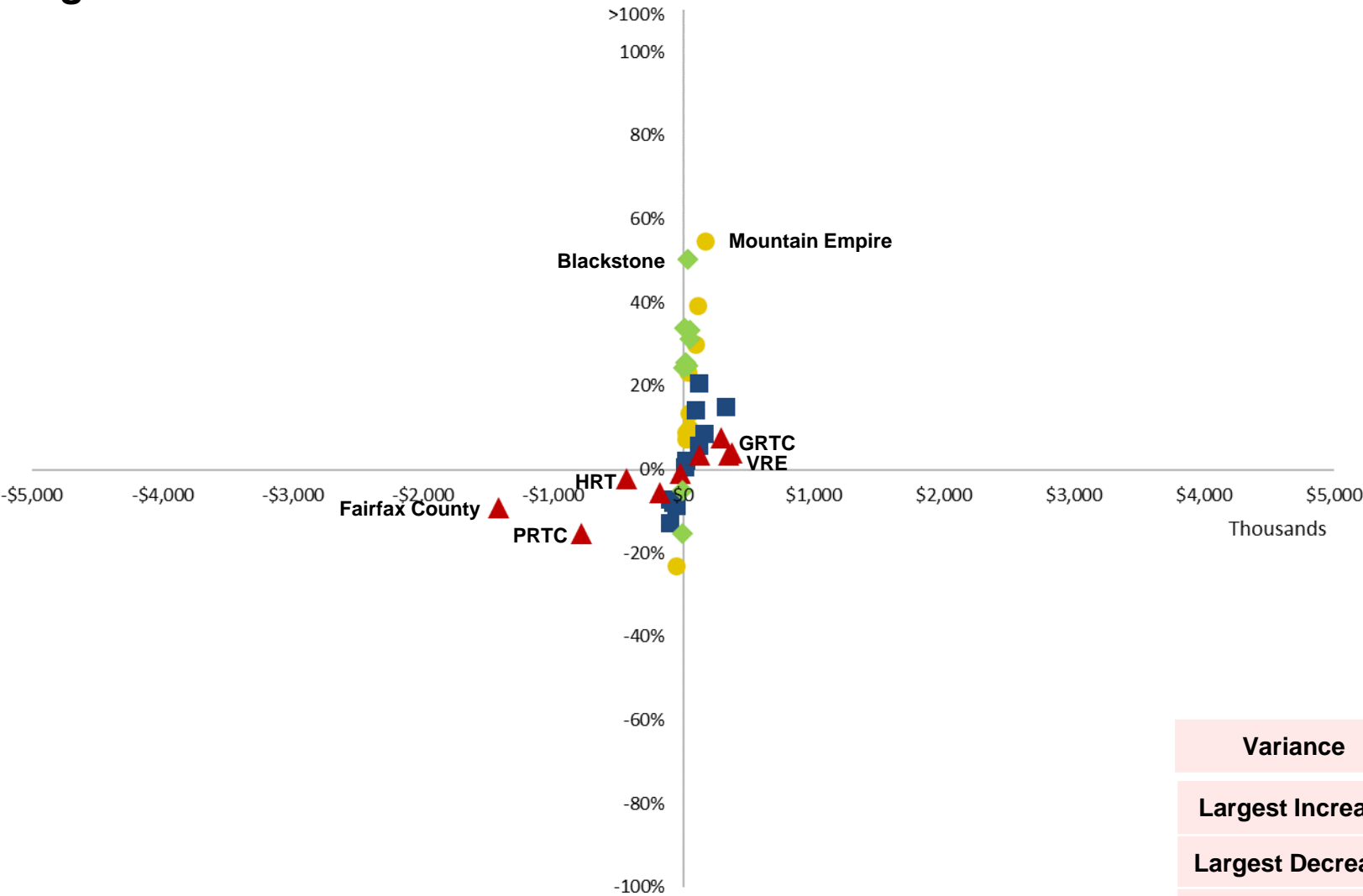
Variation 2 - Projected Operating Assistance Allocations:
3rd and 4th Quartile Agencies

Line is Current Allocation Method for FY19



Variation 2
25% Cost / RVH
25% Cost / RVM
50 % Net Cost /
Pax

Variation 2 - Projected Variance from Actual FY19
Operating Assistance Allocation by Agency
No Change is at Zero on the Axes



| | |
|--|--------------------------|
| | Largest quartile |
| | 2 nd quartile |
| | 3 rd quartile |
| | Smallest quartile |

| | | |
|------------------|---------------|-------|
| Variance | 0.033 | |
| Largest Increase | \$374,691 | 55% |
| Largest Decrease | (\$1,417,504) | (23%) |
| Unallocated | \$513,941 | |

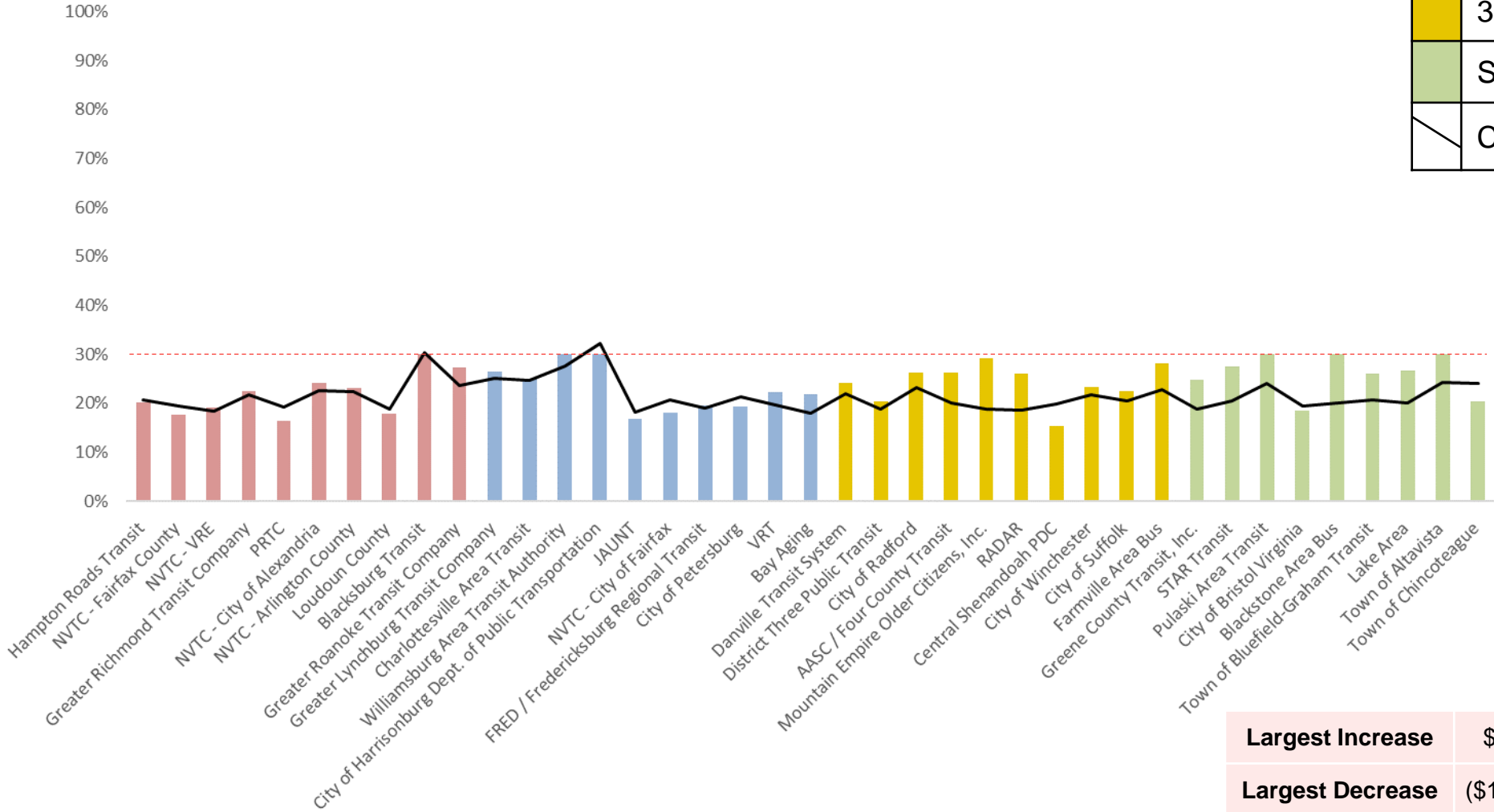
Variation 2
25% Cost / RVH
25% Cost / RVM
50 % Net Cost /
Pax

Variation 2 - Operating Assistance as % of Operating Cost by Agency

Line is Current Allocation Method for FY19

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

35



| | | |
|------------------|---------------|-------|
| Largest Increase | \$374,691 | 55% |
| Largest Decrease | (\$1,417,504) | (23%) |
| Unallocated | \$513,941 | |

Variation 3

Performance Metrics:

25% Op Cost / RVH

25% Op Cost / RVM

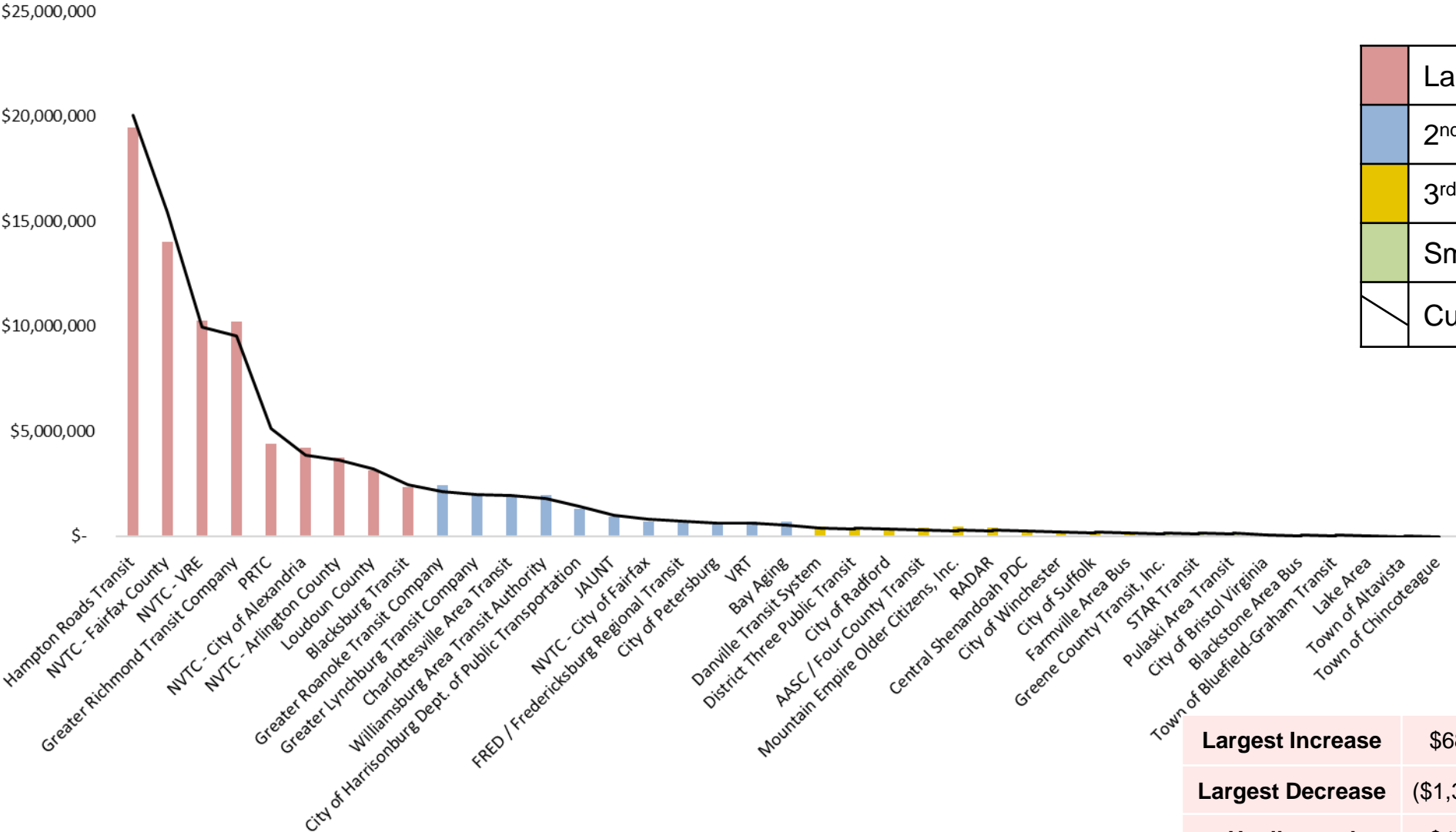
50 % Op Cost / Pax

Variation 3
25% Cost / RVH
25% Cost / RVM
50 % Cost / Pax

Variation 3 - Projected Operating Assistance Allocations by Agency

Line is Current Allocation Method for FY19

37



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

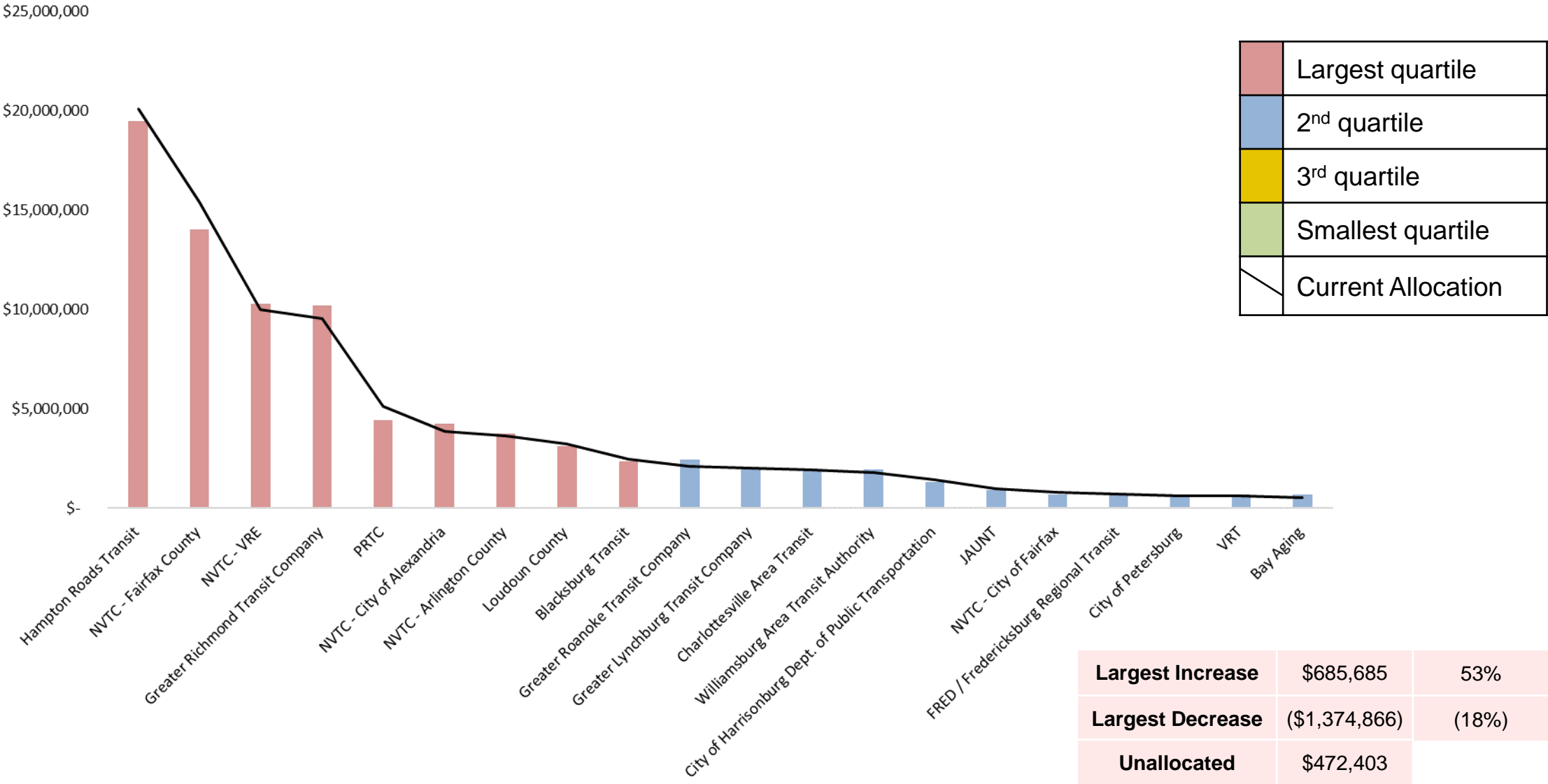


| | | |
|------------------|---------------|-------|
| Largest Increase | \$685,685 | 53% |
| Largest Decrease | (\$1,374,866) | (18%) |
| Unallocated | \$472,403 | |

Variation 3
25% Cost / RVH
25% Cost / RVM
50 % Cost / Pax

Variation 3 - Projected Operating Assistance Allocations: 1st and 2nd Quartile Agencies

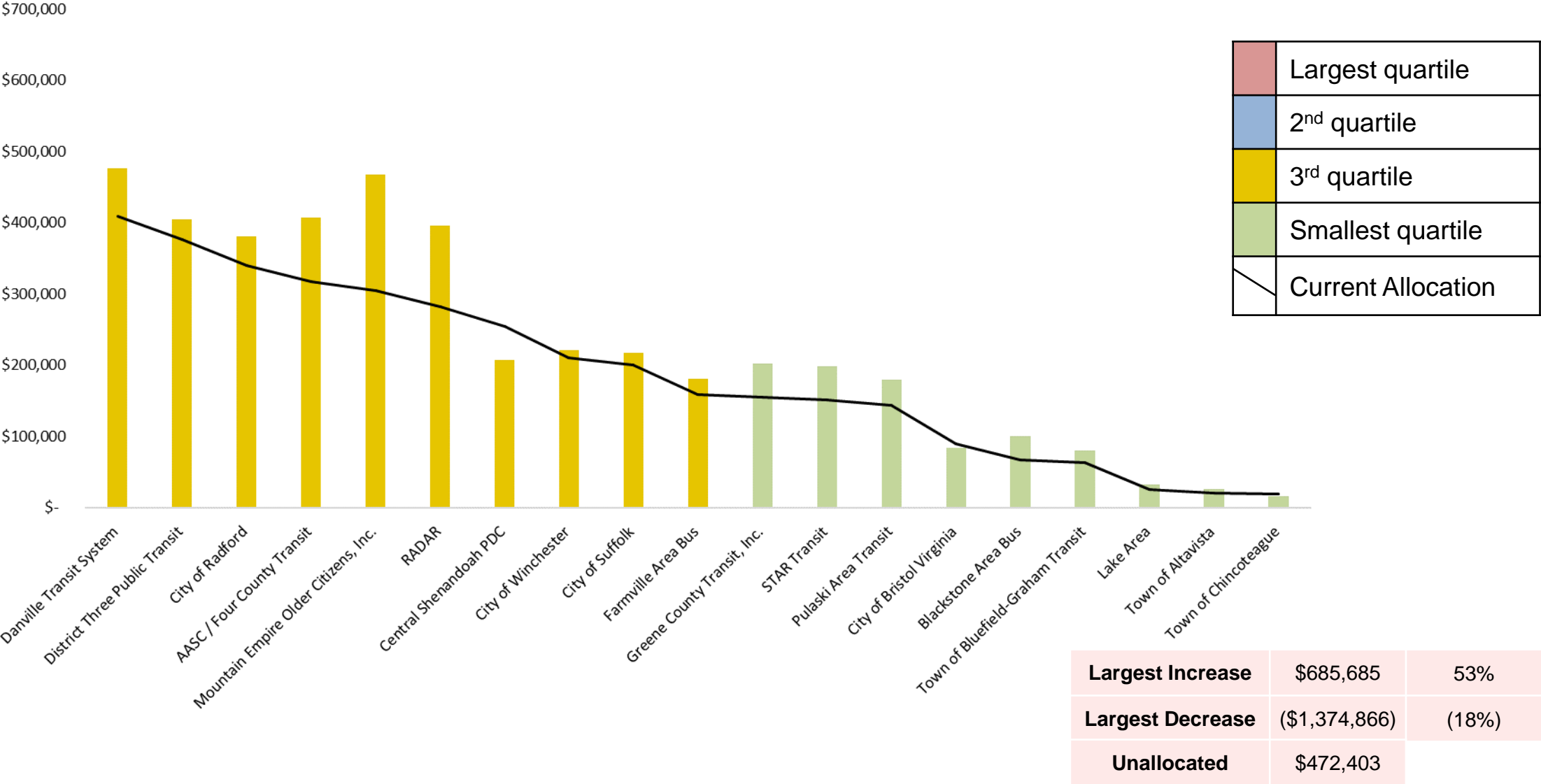
Line is Current Allocation Method for FY19



Variation 3
25% Cost / RVH
25% Cost / RVM
50 % Cost / Pax

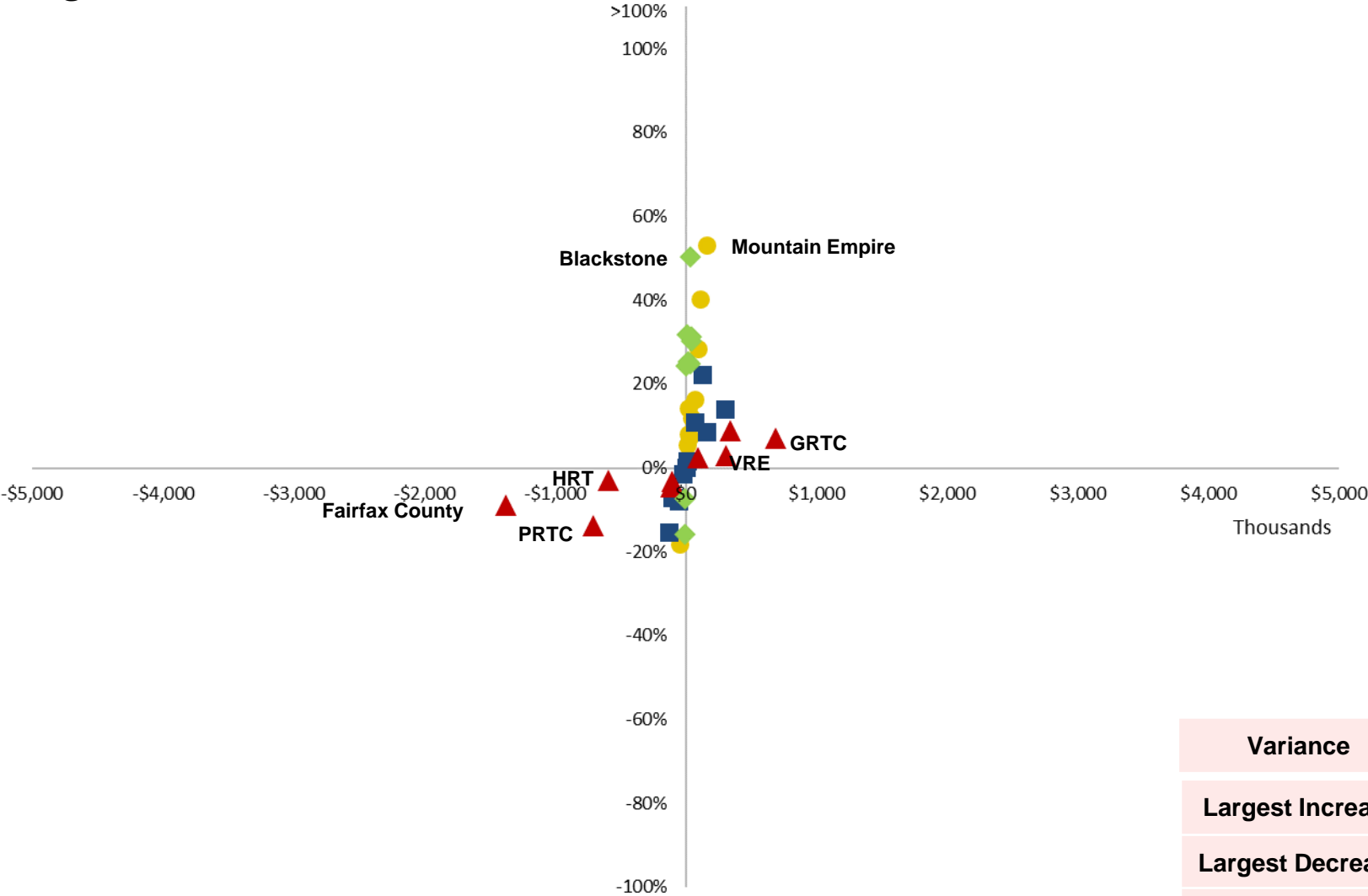
Variation 3 - Projected Operating Assistance Allocations: 3rd and 4th Quartile Agencies

Line is Current Allocation Method for FY19



Variation 3
25% Cost / RVH
25% Cost / RVM
50 % Cost / Pax

Variation 3 - Projected Variance from Actual FY19
Operating Assistance Allocation by Agency
No Change is at Zero on the Axes



| | |
|--|--------------------------|
| | Largest quartile |
| | 2 nd quartile |
| | 3 rd quartile |
| | Smallest quartile |

| | | |
|------------------|---------------|-------|
| Variance | 0.031 | |
| Largest Increase | \$685,685 | 53% |
| Largest Decrease | (\$1,374,866) | (18%) |
| Unallocated | \$472,403 | |

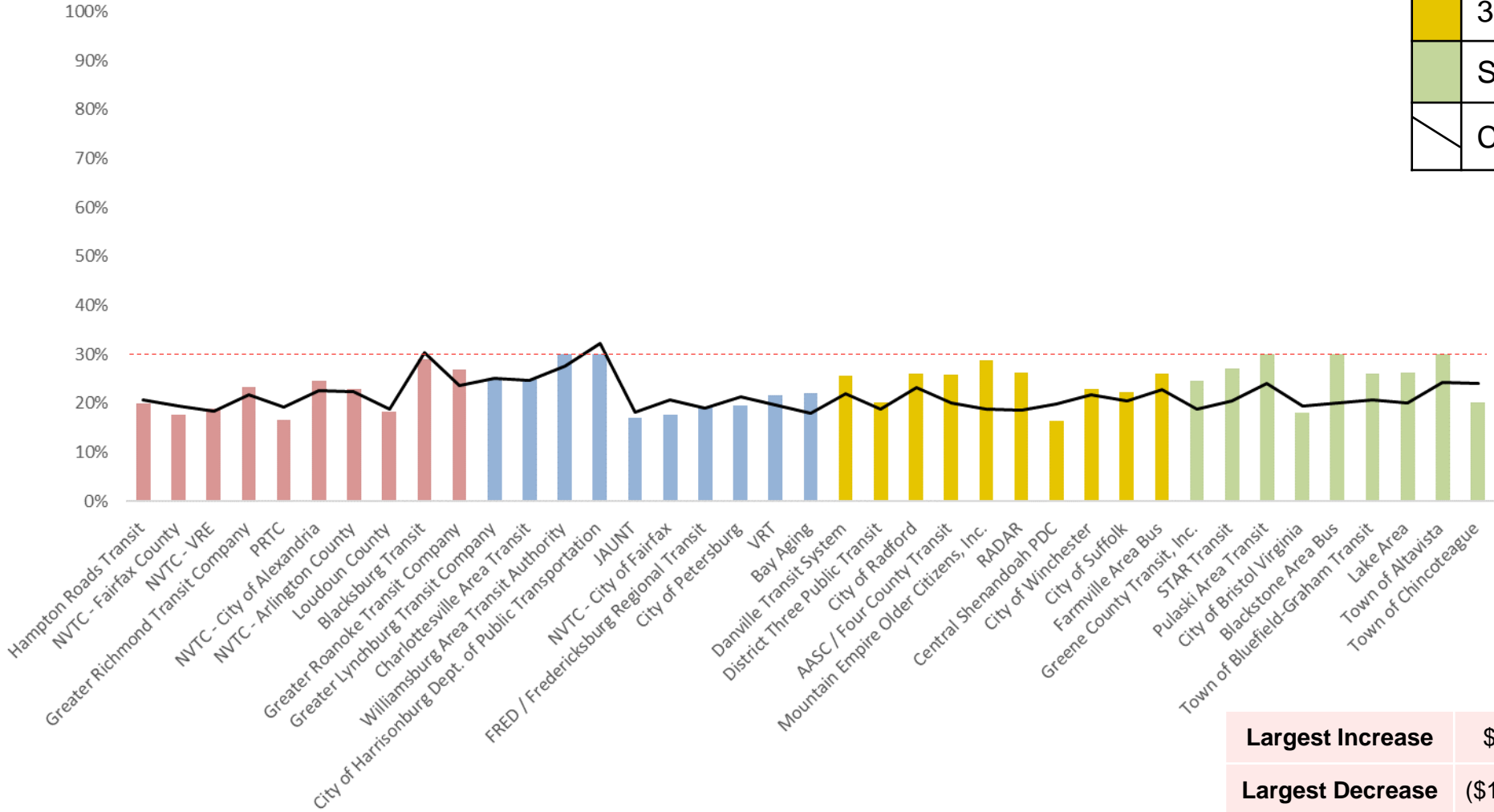
Variation 3
25% Cost / RVH
25% Cost / RVM
50 % Cost / Pax

Variation 3 - Operating Assistance as % of Operating Cost by Agency

Line is Current Allocation Method for FY19

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

41



| | | |
|------------------|---------------|-------|
| Largest Increase | \$685,685 | 53% |
| Largest Decrease | (\$1,374,866) | (18%) |
| Unallocated | \$472,403 | |



Variation 4

Performance Metrics:

20% Pax / RVH

20% Pax / RVM

20% Op Cost / RVH

20% Op Cost / RVM

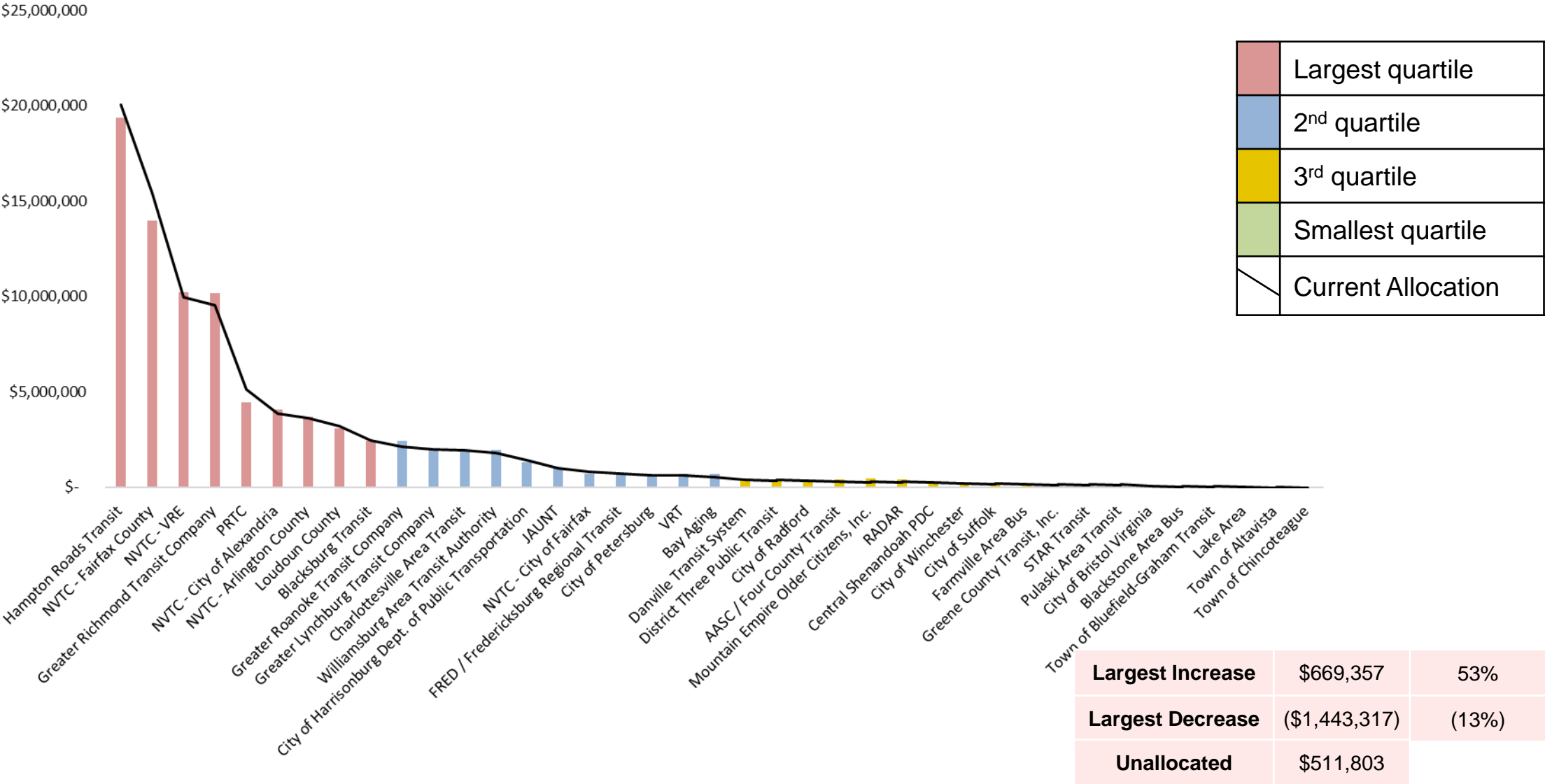
20% Op Cost / Pax

Variation 4
20% Pax / RVH
20% Pax / RVM
20% Cost / RVH
20% Cost / RVM
20% Cost / Pax

Variation 4 - Projected Operating Assistance Allocations by Agency

Line is Current Allocation Method for FY19

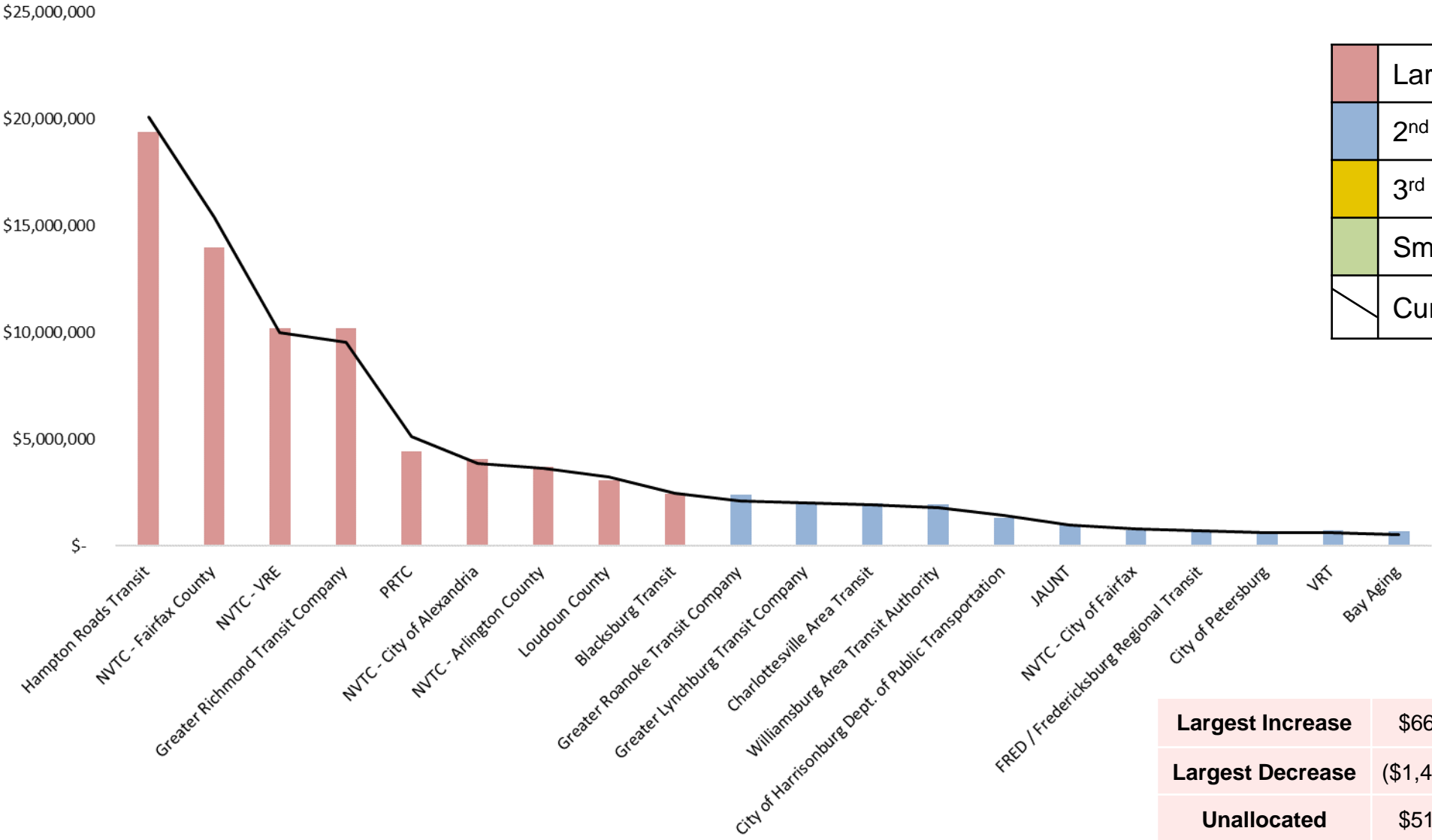
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Variation 4
20% Pax / RVH
20% Pax / RVM
20% Cost / RVH
20% Cost / RVM
20% Cost / Pax

Variation 4 - Projected Operating Assistance Allocations: 1st and 2nd Quartile Agencies

Line is Current Allocation Method for FY19



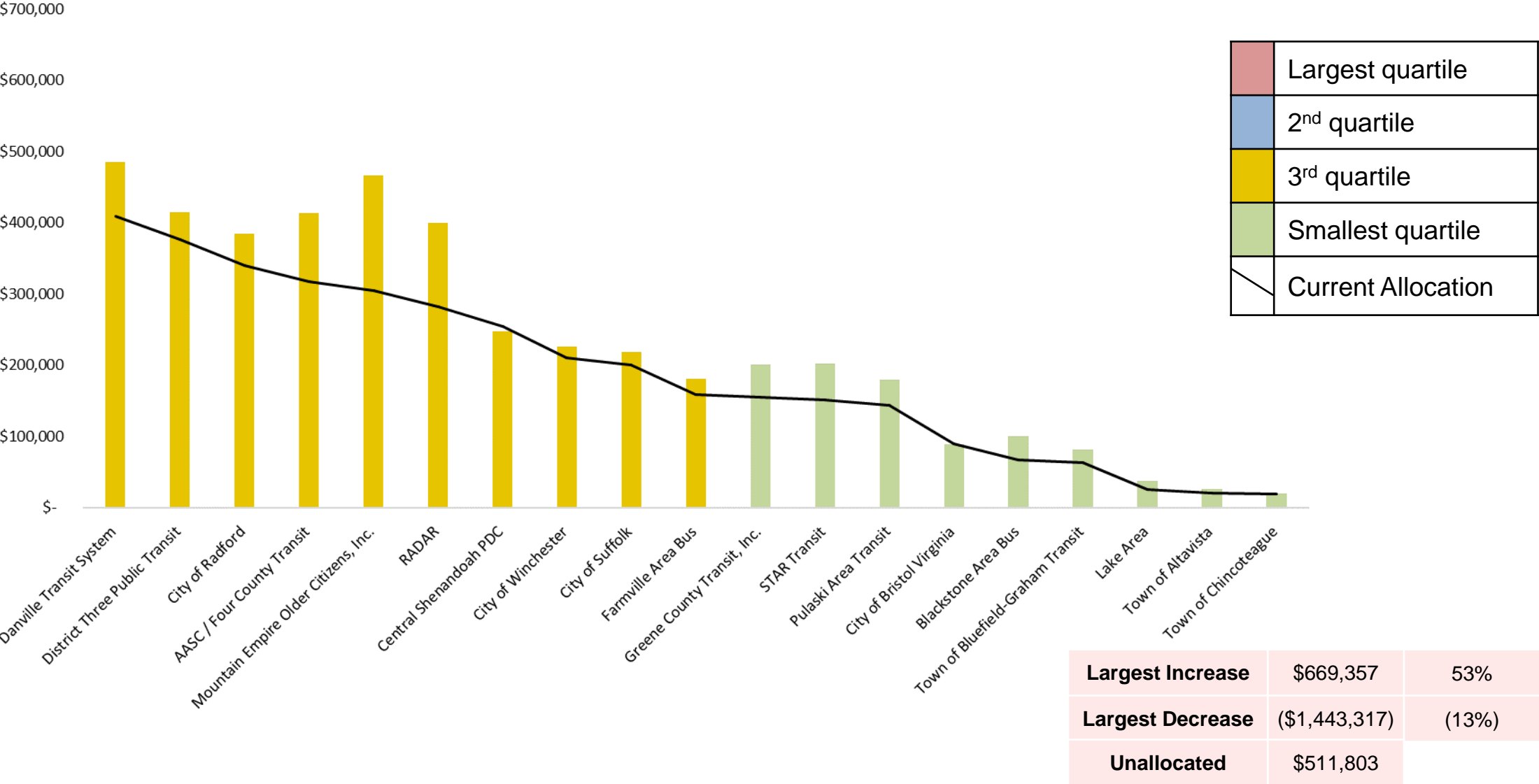
| | |
|--|--------------------------|
| | Largest quartile |
| | 2 nd quartile |
| | 3 rd quartile |
| | Smallest quartile |
| | Current Allocation |

| | | |
|------------------|---------------|-------|
| Largest Increase | \$669,357 | 53% |
| Largest Decrease | (\$1,443,317) | (13%) |
| Unallocated | \$511,803 | |

Variation 4
20% Pax / RVH
20% Pax / RVM
20% Cost / RVH
20% Cost / RVM
20% Cost / Pax

Variation 4 - Projected Operating Assistance Allocations: 3rd and 4th Quartile Agencies

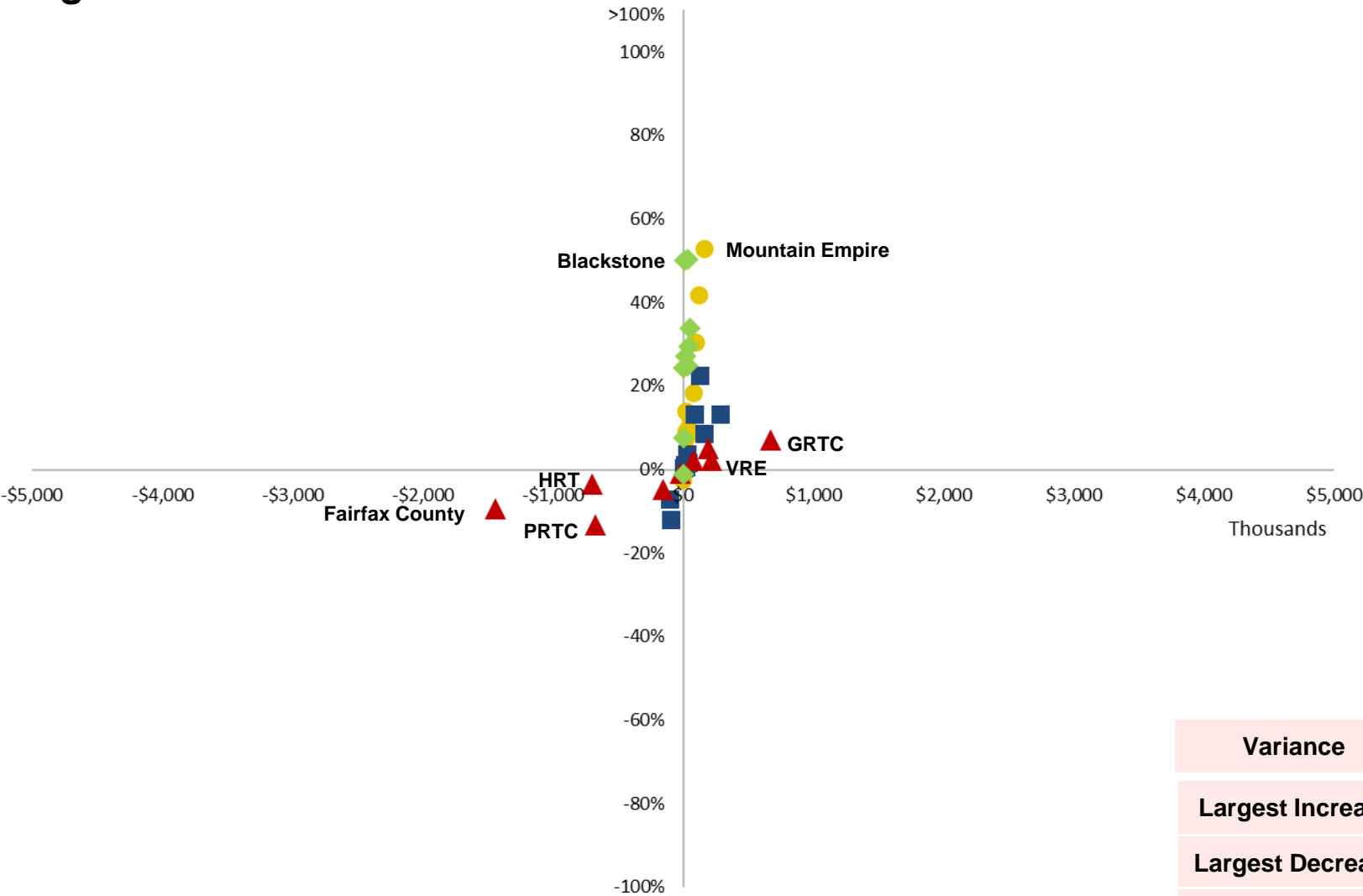
Line is Current Allocation Method for FY19



Variation 4
20% Pax / RVH
20% Pax / RVM
20% Cost / RVH
20% Cost / RVM
20% Cost / Pax

Variation 4 - Projected Variance from Actual FY19 Operating Assistance Allocation by Agency

No Change is at Zero on the Axes



| | |
|--|--------------------------|
| | Largest quartile |
| | 2 nd quartile |
| | 3 rd quartile |
| | Smallest quartile |

| | | |
|------------------|---------------|-------|
| Variance | 0.029 | |
| Largest Increase | \$669,357 | 53% |
| Largest Decrease | (\$1,443,317) | (13%) |
| Unallocated | \$511,803 | |

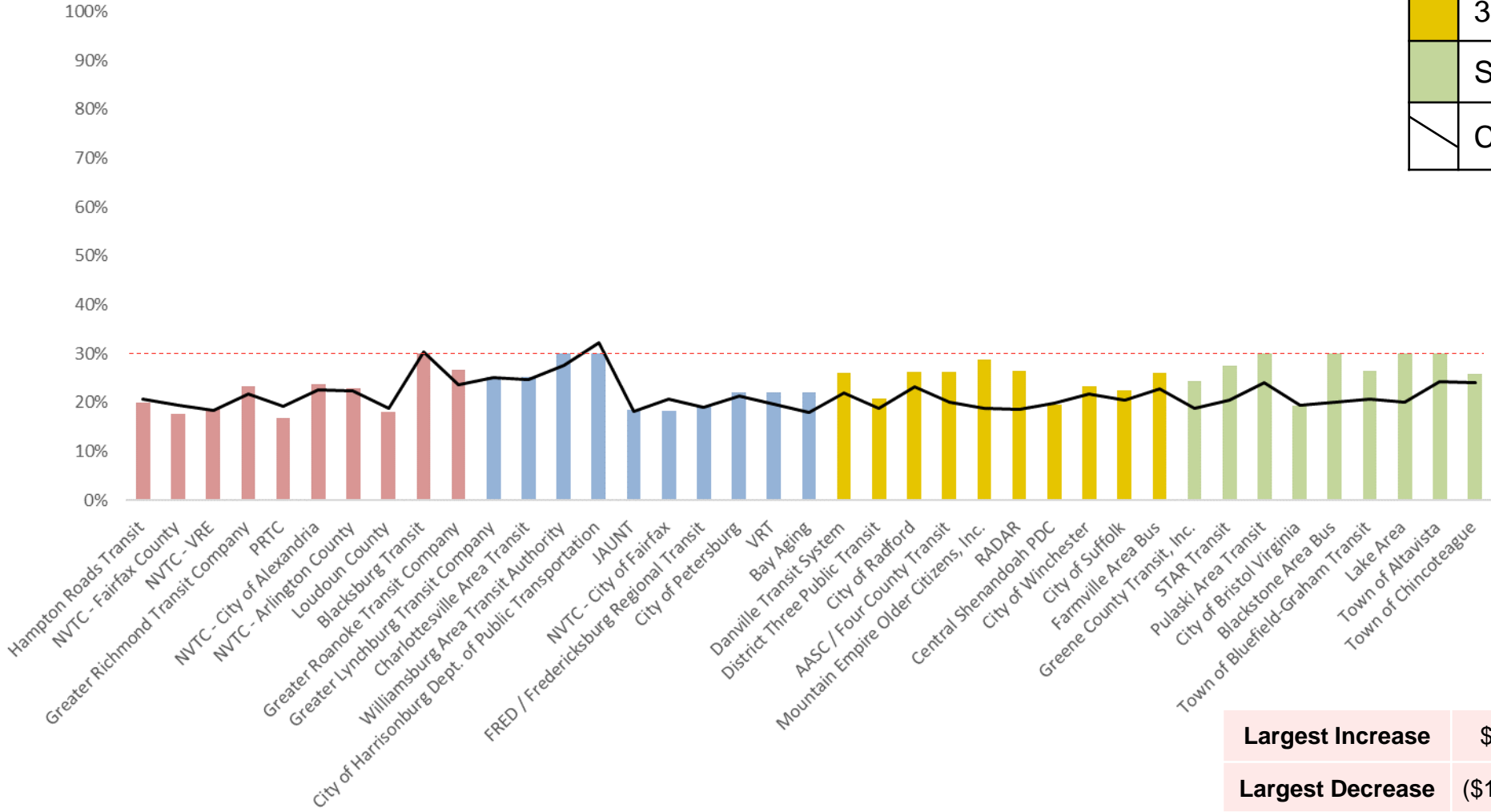
Variation 4
20% Pax / RVH
20% Pax / RVM
20% Cost / RVH
20% Cost / RVM
20% Cost / Pax

Variation 4 - Operating Assistance as % of Operating Cost by Agency

Line is Current Allocation Method for FY19

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

47



| | | |
|------------------|---------------|-------|
| Largest Increase | \$669,357 | 53% |
| Largest Decrease | (\$1,443,317) | (13%) |
| Unallocated | \$511,803 | |

Allocation Scenarios – Summary Results

| Scenario Name | Variance | Unallocated |
|--|----------|-------------|
| C-Capped. Cost, Ridership, Revenue Hours, Revenue Miles – 50/30/10/10 % – <i>Capped 30%</i> | 0.032 | \$763,270 |
| Variation 1 | 0.031 | \$628,392 |
| Variation 2 | 0.033 | \$513,941 |
| Variation 3 | 0.031 | \$472,403 |
| Variation 4 | 0.029 | \$511,803 |

Summary

- All scenarios present similar low variances (driven primarily by choice of sizing metrics)
- Variations 2, 3 and 4 present similar amounts of unallocated funds (around \$500k)
- Variation 4, with 5 metrics at 20% each, presents the lowest variance
- Variation 3, which only uses cost-based performance adjustment metrics, presents the lowest amount of unallocated funds

Next Steps

- Determine preferred performance metrics approach
- Finalize overall approach