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NCDOT Public Transportation State Maintenance Assistance Program (SMAP)

Allocation Formula Explanation

SMAP Background

- Established by NC Legislature in FY 1994.
- Board of Transportation Directed PTD to develop allocation formula that includes “significant performance component.”

SMAP Background (Cont.)

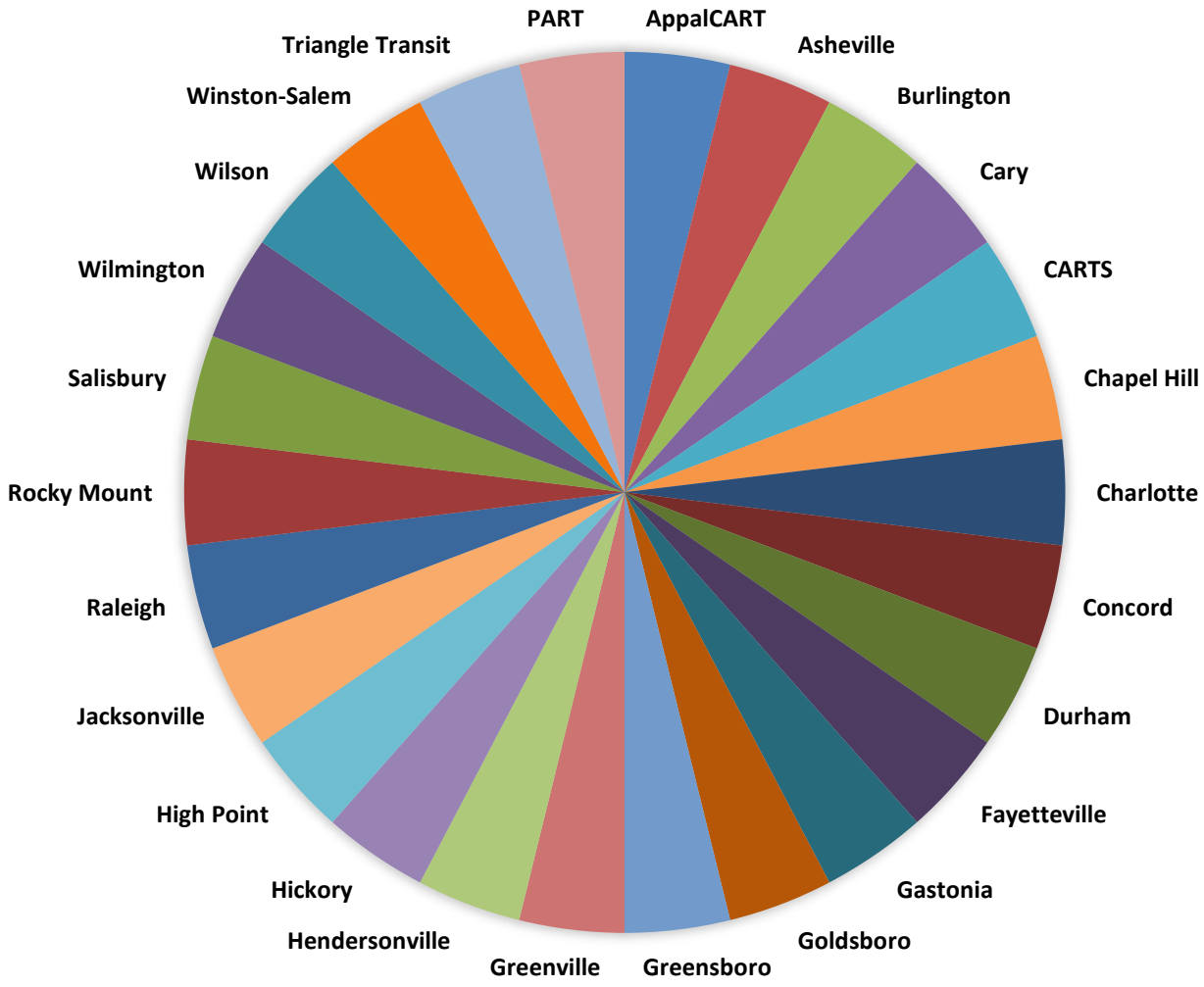
- Allocation formula must require local sponsors to put up at least the same amount of local government funds each year as they did in FY93 and that no more SMAP funds could be given to a transit system than the local government provided in assistance.

- SMAP allocation formula approved in October 1996 and has effectively remained unchanged since.

SUMMARY

State Maintenance Assistance Program (SMAP) Allocation
A. Equal Share Allocation Tier (10%)
FY 19 Disbursement

Name	A. Equal Share
AppalCART	$95,886
Asheville	$95,886
Burlington	$95,886
Cary	$95,886
Chapel Hill	$95,886
Charlotte	$95,886
Concord	$95,886
Durham	$95,886
Fayetteville	$95,886
Gastonia	$95,886
Goldsboro	$95,886
Greensboro	$95,886
Greenville	$95,886
Hendersonville	$95,886
Hickory	$95,886
High Point	$95,886
Jacksonville	$95,886
Raleigh	$95,886
Rocky Mount	$95,886
Salisbury	$95,886
Wilmington	$95,886
Wilson	$95,886
Winston-Salem	$95,886
GoTriangle	$95,886
PART	$95,886



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State Maintenance Assistance Program (SMAP) Allocation
B. Local Revenues and Assistance Allocation Tier (30%)
FY 19 Disbursement

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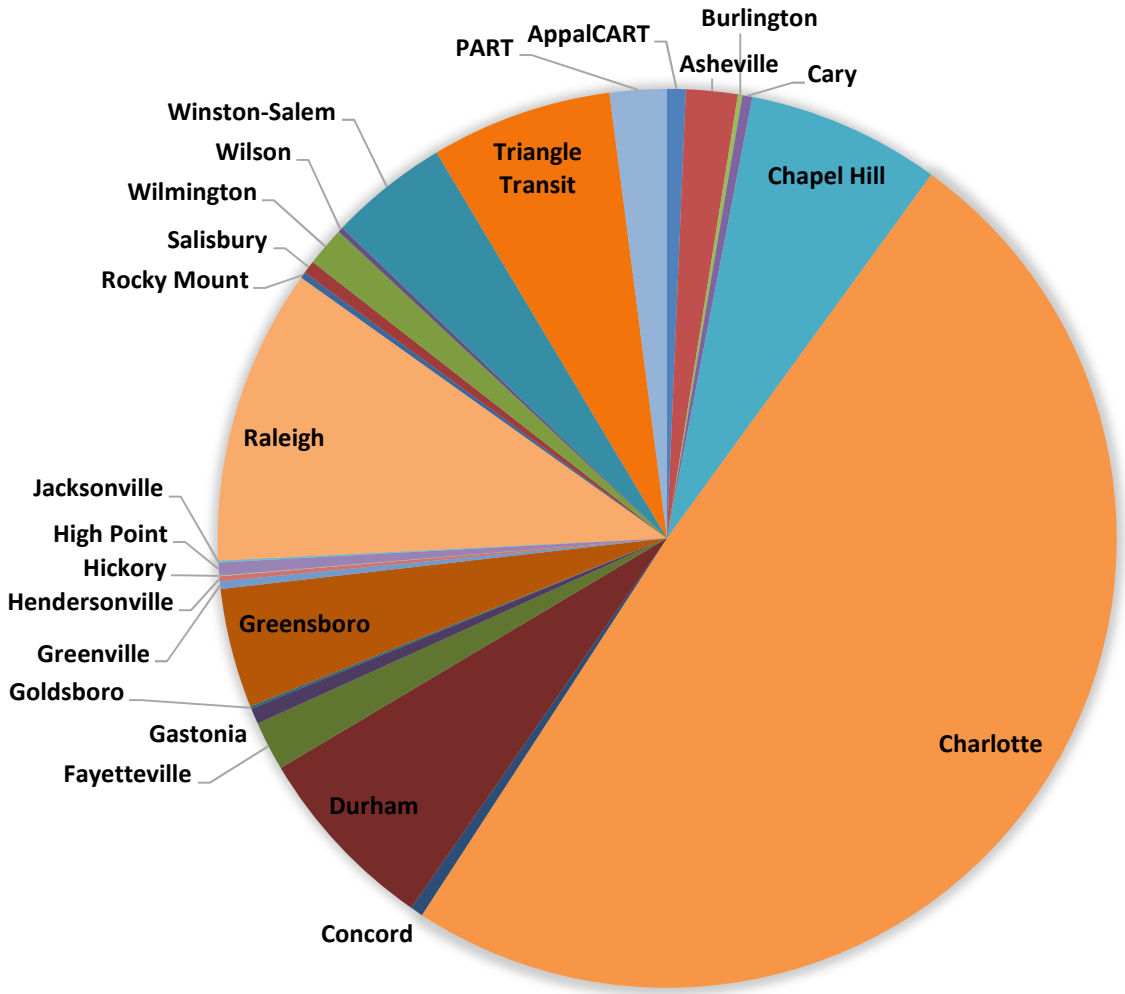
Name	B. Local Share
AppalCART	$47,892
Asheville	$133,524
Burlington	$11,035
Cary	$25,993
Chapel Hill	$500,721
Charlotte	$3,536,878
Concord	$32,704
Durham	$491,340
Fayetteville	$127,503
Gastonia	$40,804
Goldsboro	$5,883
Greensboro	$309,420
Greenville	$19,942
Hendersonville	$12,923
Hickory	$2,109
High Point	$33,000
Jacksonville	$4,919
Raleigh	$765,442
Rocky Mount	$16,050
Salisbury	$33,580
Wilmington	$101,864
Wilson	$13,346
Winston-Salem	$308,424
GoTriangle	$468,597
PART	$147,596



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State Maintenance Assistance Program (SMAP) Allocation
C. Net Cost per Unlinked Passenger Trip Allocation Tier (30%)
FY 19 Disbursement

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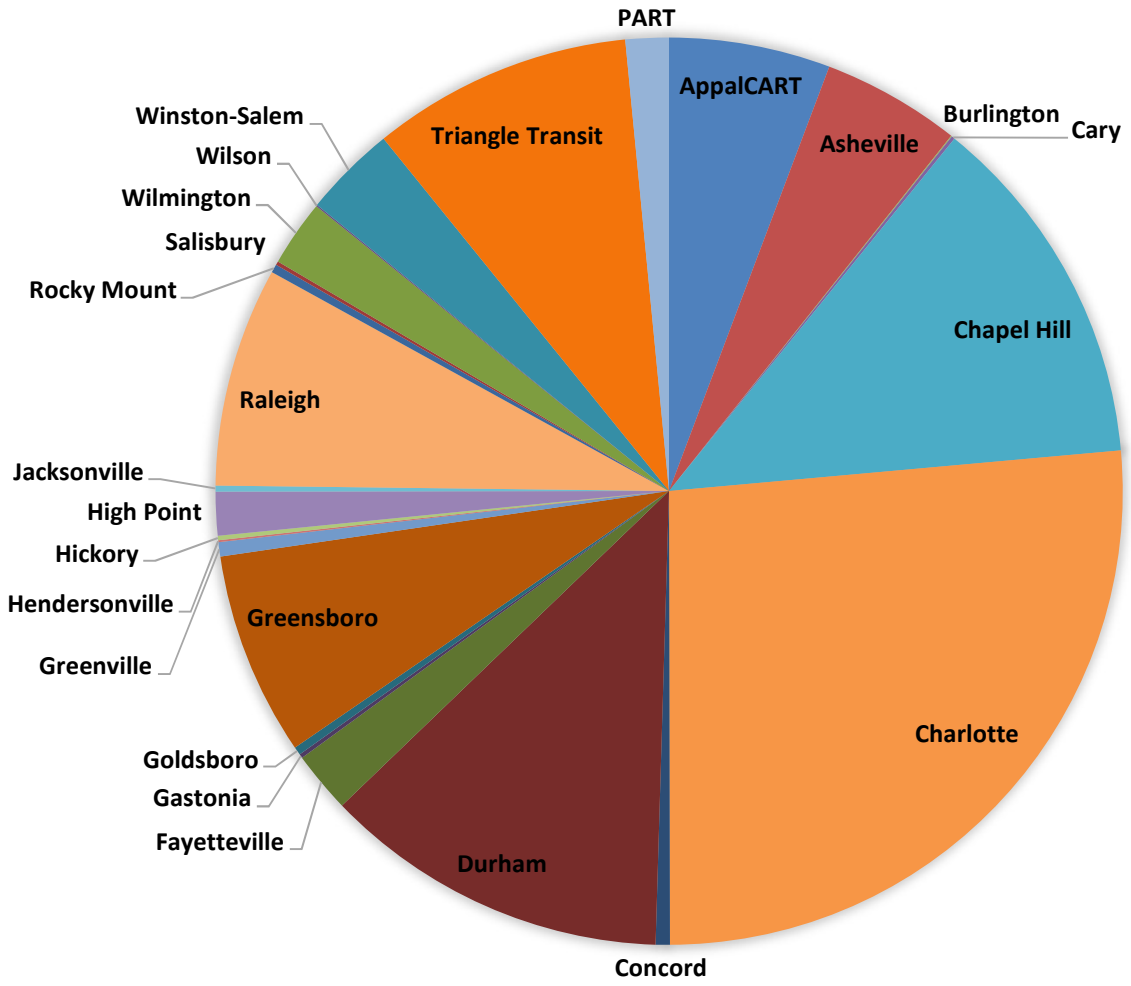
Name	C. Performance for Net Cost per Trip
AppalCART	$412,938
Asheville	$354,962
Burlington	$2,689
Cary	$8,233
Chapel Hill	$916,137
Charlotte	$1,898,861
Concord	$36,229
Durham	$887,354
Fayetteville	$157,294
Gastonia	$10,499
Goldsboro	$20,877
Greensboro	$521,692
Greenville	$36,961
Hendersonville	$4,768
Hickory	$11,259
High Point	$111,777
Jacksonville	$15,412
Raleigh	$562,675
Rocky Mount	$20,927
Salisbury	$9,661
Wilmington	$169,982
Wilson	$3,412
Winston-Salem	$237,981
GoTriangle	$667,926
PART	$110,985



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State Maintenance Assistance Program (SMAP) Allocation
D. Unlinked Passenger Trips per Vehicle Revenue Hour Allocation Tier (30%)
FY 19 Disbursement

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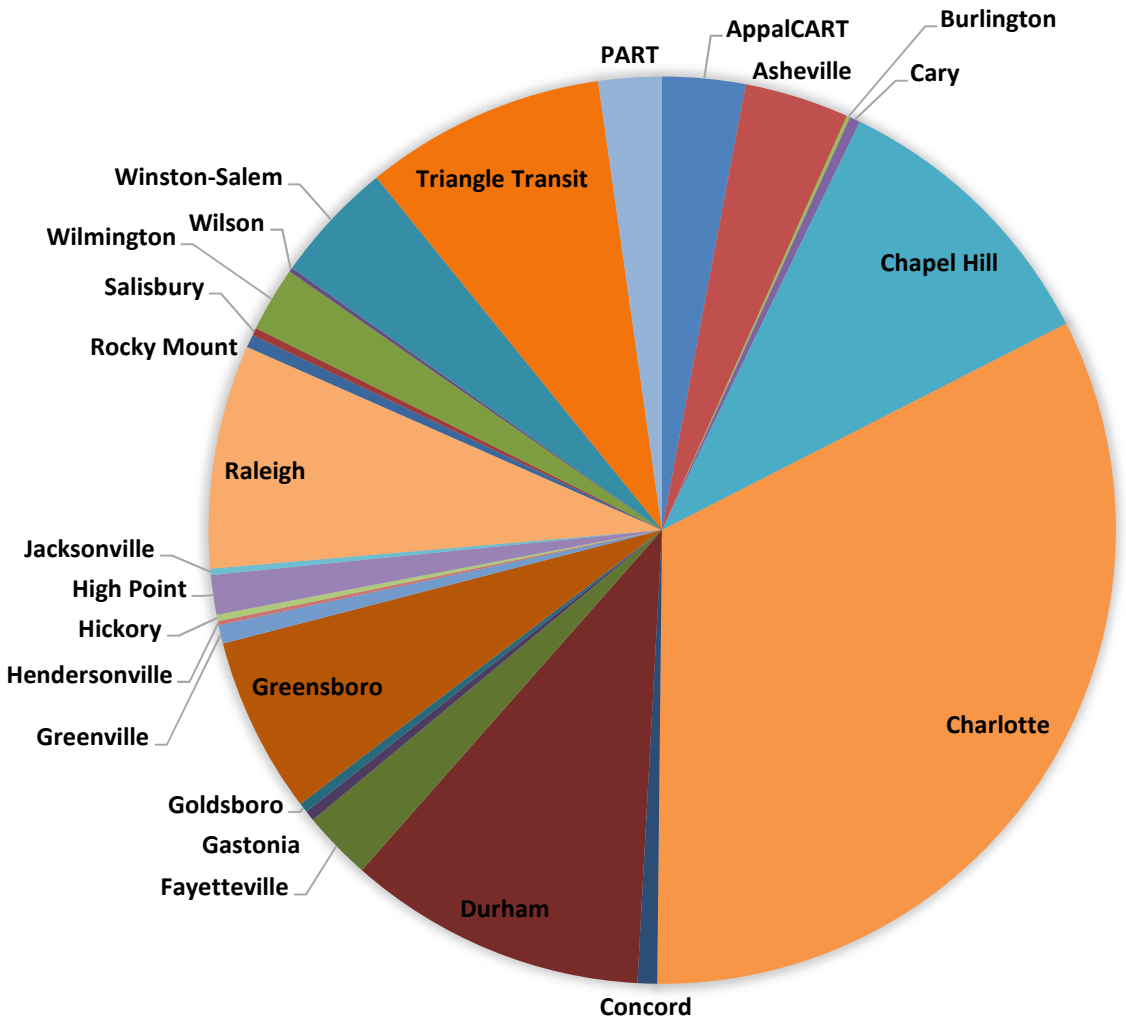
Name	D. Performance for Trips per Vehicle Revenue Hour
AppalCART	$212,710
Asheville	$267,120
Burlington	$9,661
Cary	$26,420
Chapel Hill	$740,581
Charlotte	$2,351,956
Concord	$50,182
Durham	$764,877
Fayetteville	$177,511
Gastonia	$26,434
Goldsboro	$24,528
Greensboro	$452,702
Greenville	$47,010
Hendersonville	$10,820
Hickory	$16,301
High Point	$101,280
Jacksonville	$16,174
Raleigh	$573,109
Rocky Mount	$32,991
Salisbury	$19,730
Wilmington	$166,488
Wilson	$10,640
Winston-Salem	$313,355
GoTriangle	$616,403
PART	$162,508



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State Maintenance Assistance Program (SMAP) Allocation
Local and Regional Transit System
FY 19 Disbursement

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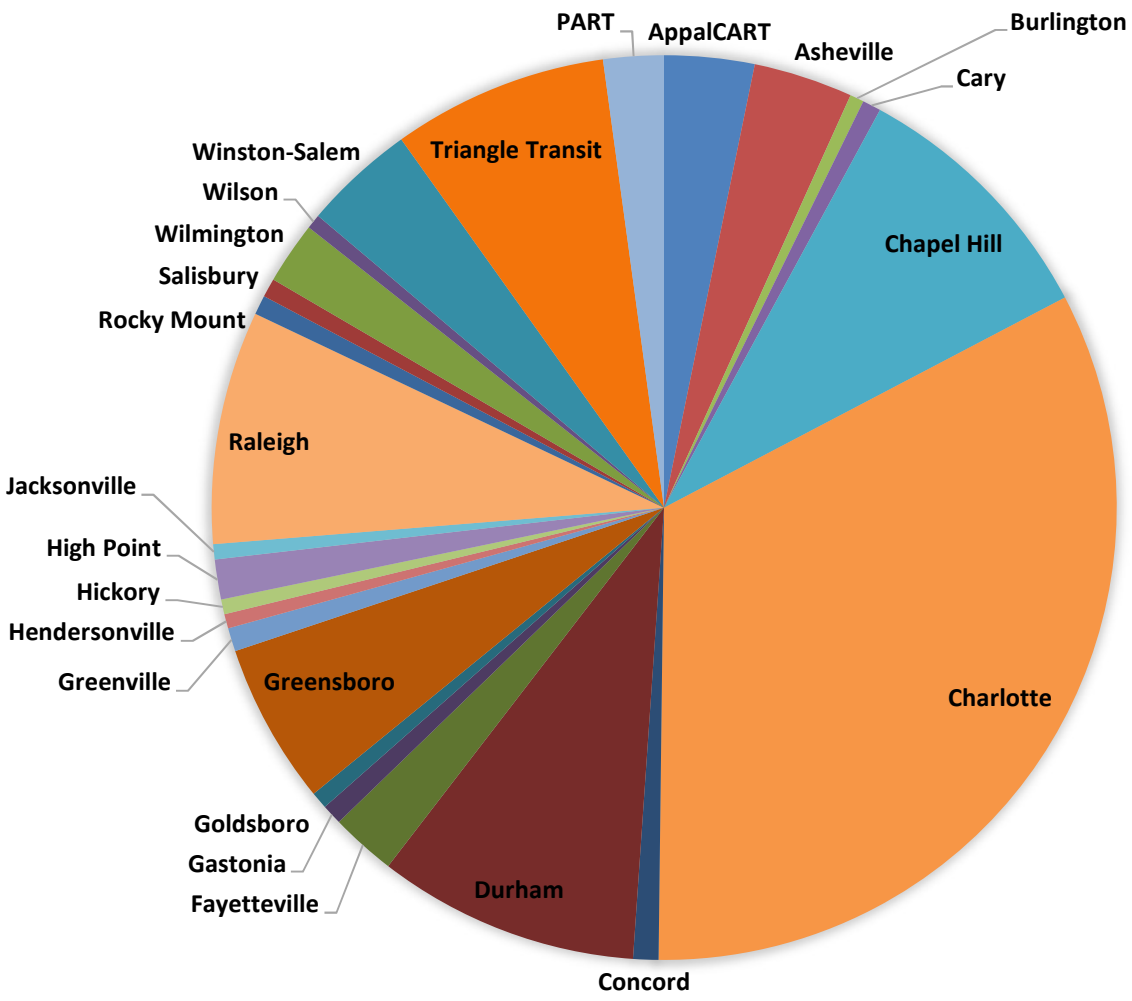
Name	Total
AppalCART	$769,426
Asheville	$851,492
Burlington	$119,271
Cary	$156,532
Chapel Hill	$2,253,325
Charlotte	$7,883,581
Concord	$215,001
Durham	$2,239,457
Fayetteville	$558,194
Gastonia	$173,623
Goldsboro	$147,174
Greensboro	$1,379,700
Greenville	$199,799
Hendersonville	$124,397
Hickory	$125,555
High Point	$341,943
Jacksonville	$132,391
Raleigh	$1,997,112
Rocky Mount	$165,854
Salisbury	$158,857
Wilmington	$534,220
Wilson	$123,284
Winston-Salem	$955,646
GoTriangle	$1,848,812
PART	$516,975



- This presentation reviews SMAP allocation for two types of transit systems in North Carolina:
  - **Local Transit Systems:** non-regional urban systems (i.e., urban single-city, consolidated small city-community, and consolidated urban-community public transportation systems)
  - **Regional Transit Systems:** regional urban systems
    - Two regional transit systems operate in the Triangle and Triad region of the state: GoTriangle and the Piedmont Authority for Regional Transportation (PART)

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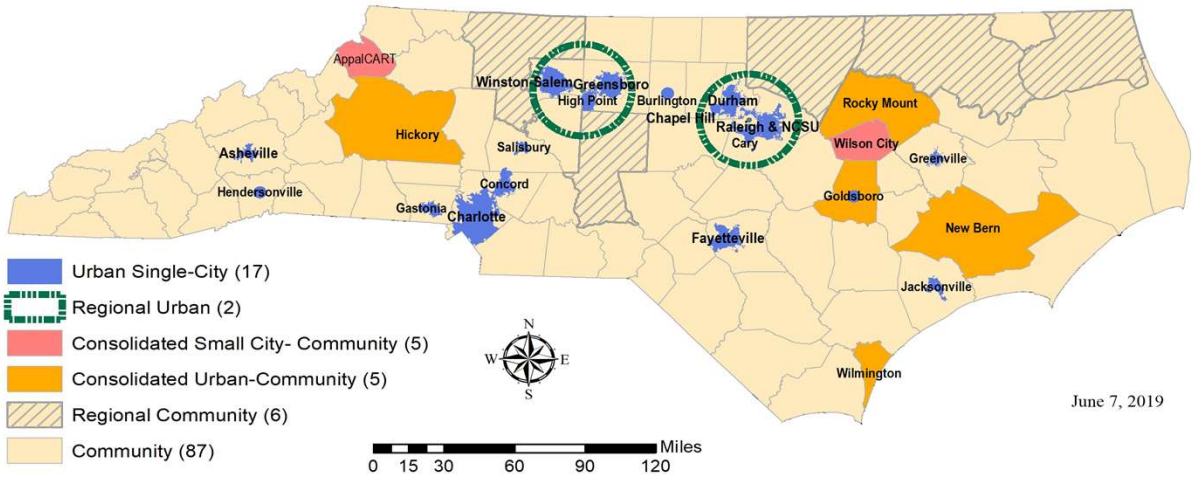
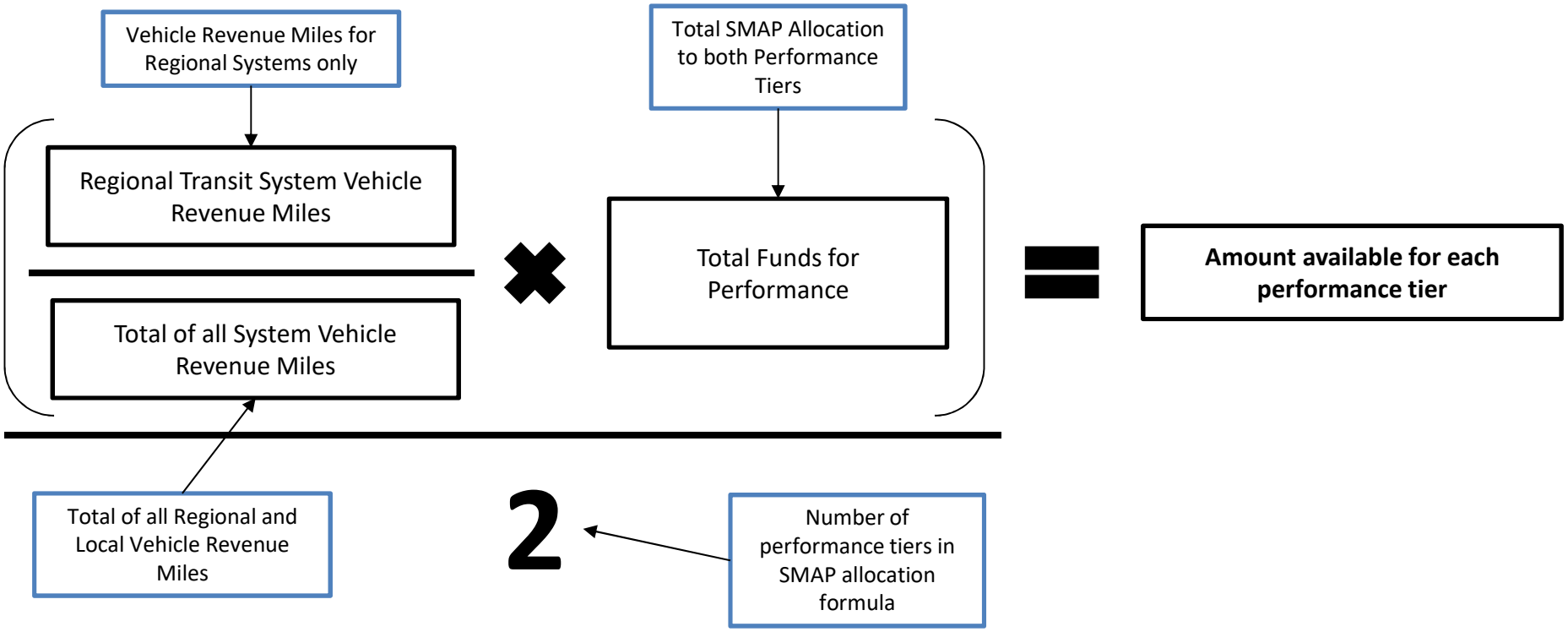
PUBLIC TRANSPORTATION SYSTEMS IN NORTH CAROLINA BY CATEGORY



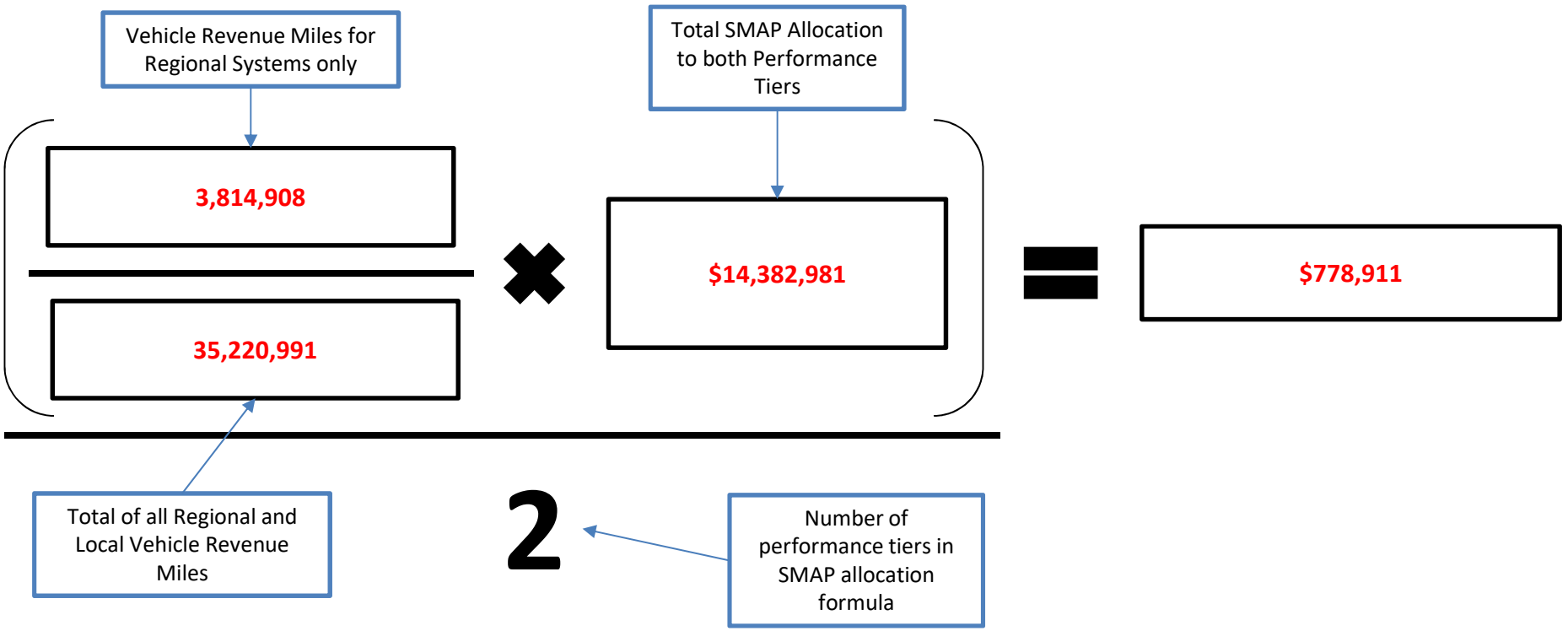
CALCULATION OF PERFORMANCE FUNDS AVAILABLE FOR REGIONAL SYSTEMS

- The amount available to each Performance Tier is calculated as follows:
  - The total of Regional Systems vehicle revenue miles is divided by the total number of vehicle revenue miles for all Systems (Regional and Local)
  - The total amount of funds available for both performance tiers is then multiplied by the proportion of Regional system vehicle miles to total Regional and Local vehicle revenue miles; the final result is the amount of Regional System funds available for both Performance tiers
  - The Regional Systems share is then divided by 2 to determine the amount available for each Performance Tier

Calculating Performance Funds Available for Regional Systems



EXAMPLE: ALLOCATION OF PERFORMANCE FUNDS FOR FY 2019

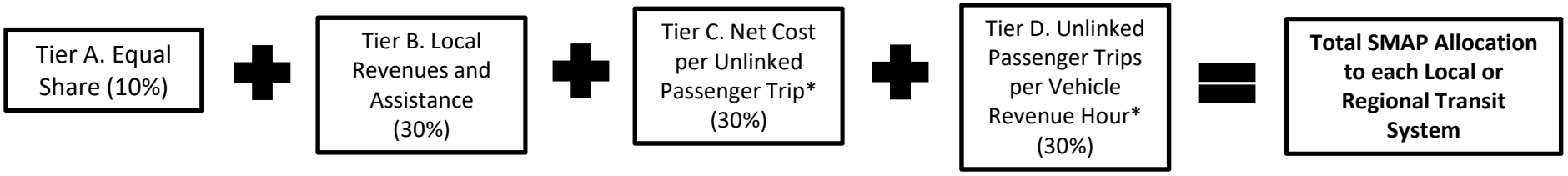


HOW STATE MAINTENANCE ASSISTANCE PROGRAM (SMAP) FUNDS ARE DISTRIBUTED

- The total amount of SMAP funds allocated to each Transit System is comprised of four allocation tiers:
  - Tier A: Equal Share
  - Tier B: Local Revenues and Assistance
  - Tier C: Net Cost per Unlinked Passenger Trip
  - Tier D: Unlinked Passenger Trips per Revenue Hour

- The slides that follow discuss in detail how these four tiers are calculated.
  - The first two tiers, *Equal Share* and *Local Revenue and Assistance*, are calculated the same way for all Local and Regional Transit Systems
  - The second two tiers, *Net Cost per Trip* and *Trips per Hour*, are calculated separately for Local and Regional Transit Systems

State Maintenance Assistance Program (SMAP) Allocation Formula Overview



A. Equal Share (10%)

B. Local Revenues and Assistance (30%)

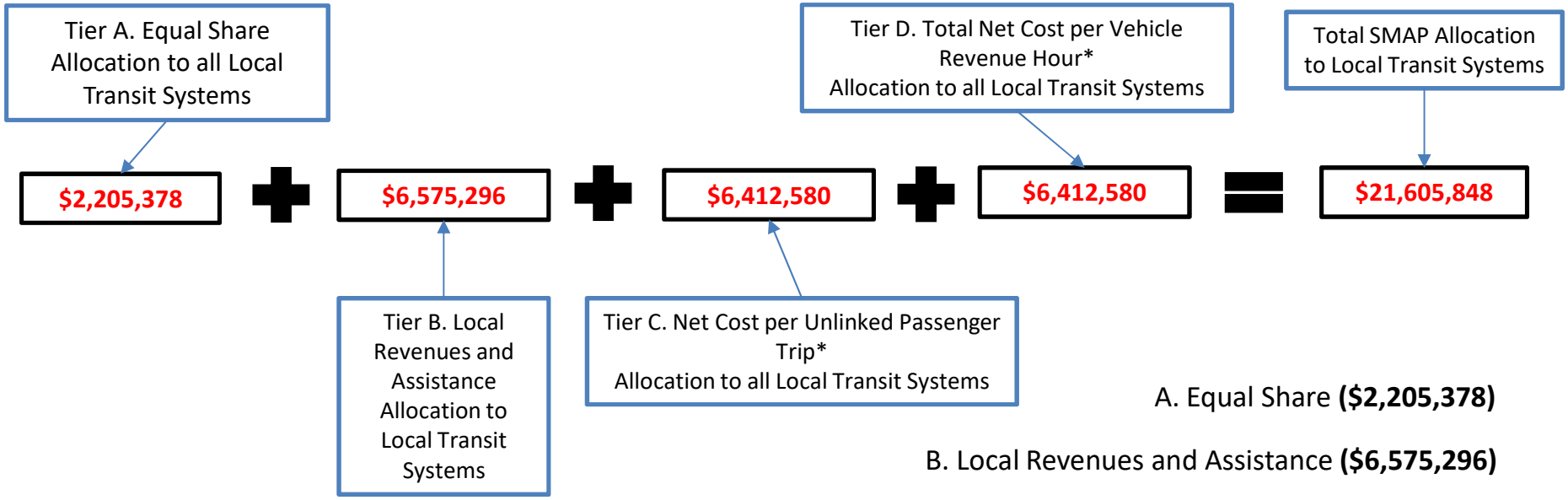
C. Net Cost per Unlinked Passenger Trip (30%)

D. Unlinked Passenger Trips per Revenue Hour (30%)

Total SMAP Allocation to Each Local or Regional Transit System (100%)

*Performance Tier

State Maintenance Assistance Program (SMAP) Allocation Formula Overview



A. Equal Share **($2,205,378)**

B. Local Revenues and Assistance **($6,575,296)**

C. Net Cost per Unlinked Passenger Trip **($6,412,580)**

D. Unlinked Passenger Trips per Revenue Hour **($6,412,580)**

Total SMAP Allocation to ALL Local Transit Systems ($21,605,848)

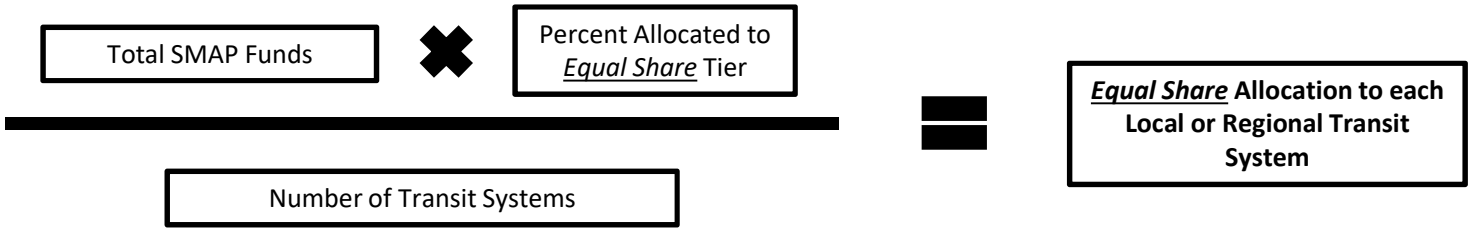
EXAMPLE: TOTAL ALLOCATION OF SMAP FUNDS TO LOCAL SYSTEMS FOR FY 2019

*Performance Tier

Allocation Tier A - Equal Share

- This allocation formula distributes an equal share of revenue to each Local or Regional Transit System
  - Funds allocated to this Tier are divided equally based on the number of SMAP recipients

Allocation Tier A – Equal Share



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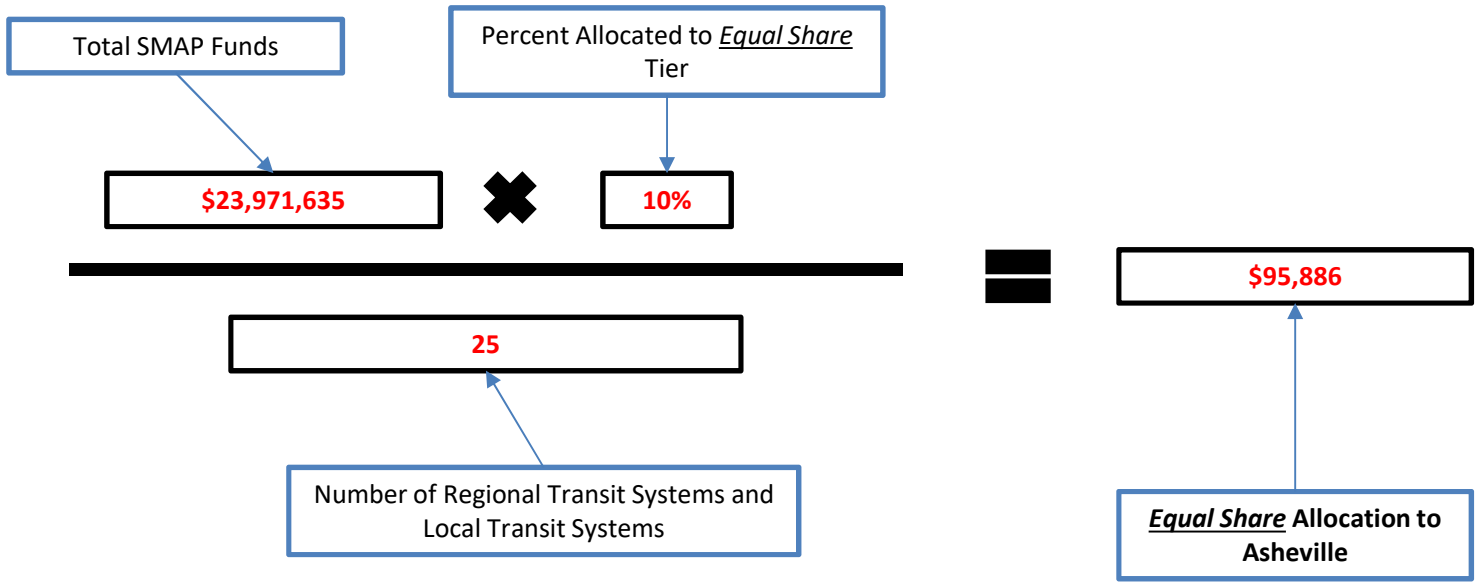
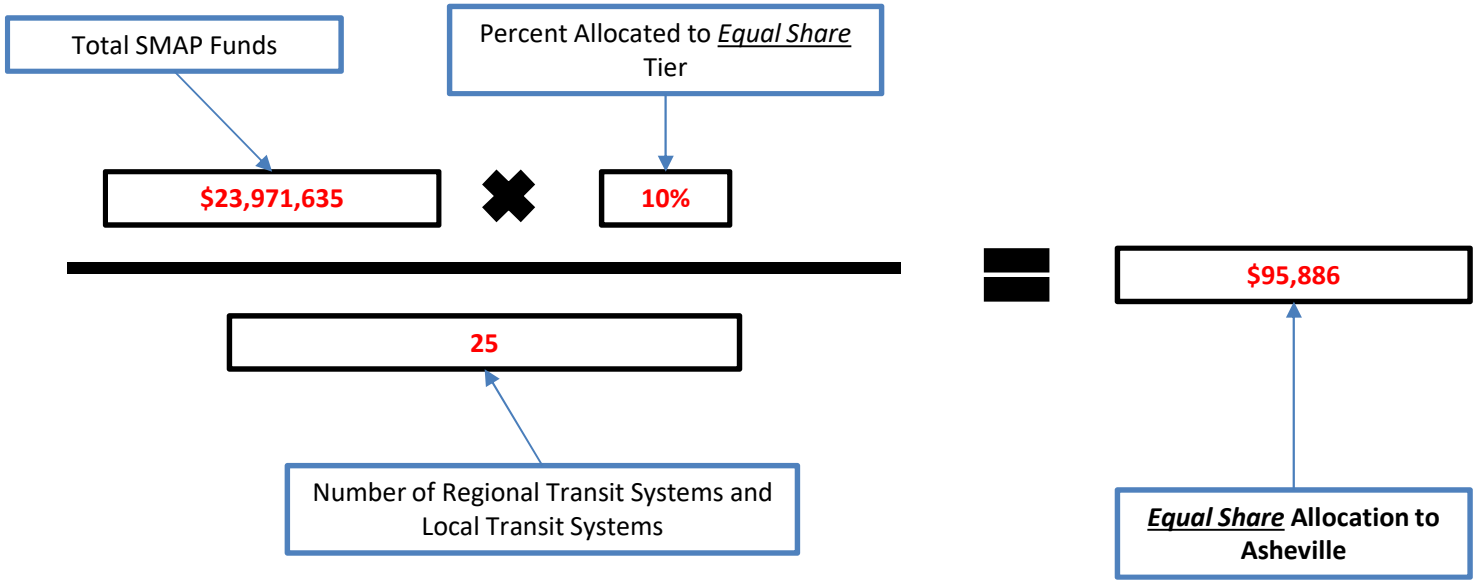
LOCAL SYSTEM EXAMPLE: ASHEVILLE (FY 19 ALLOCATION)



Note: For this tier, the local and regional system's allocation calculated together.

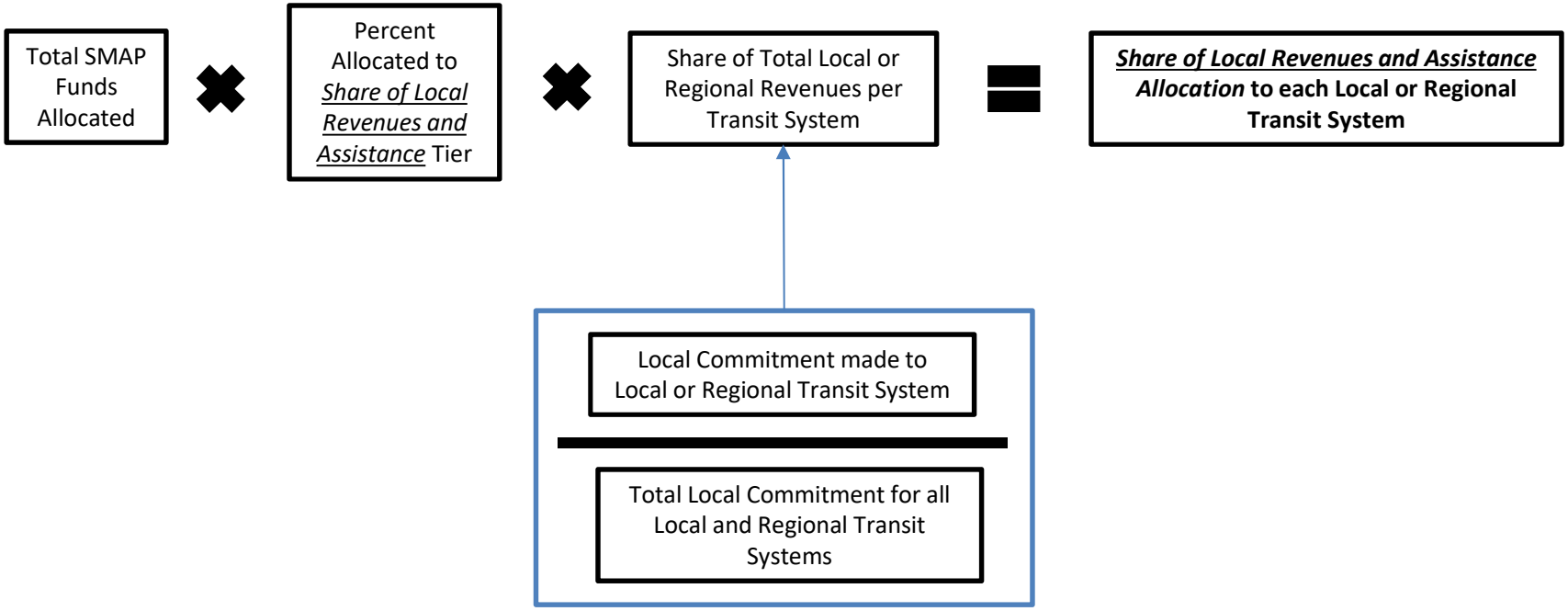
REGIONAL SYSTEM EXAMPLE: TRIANGLE TRANSIT (FY 19 ALLOCATION)



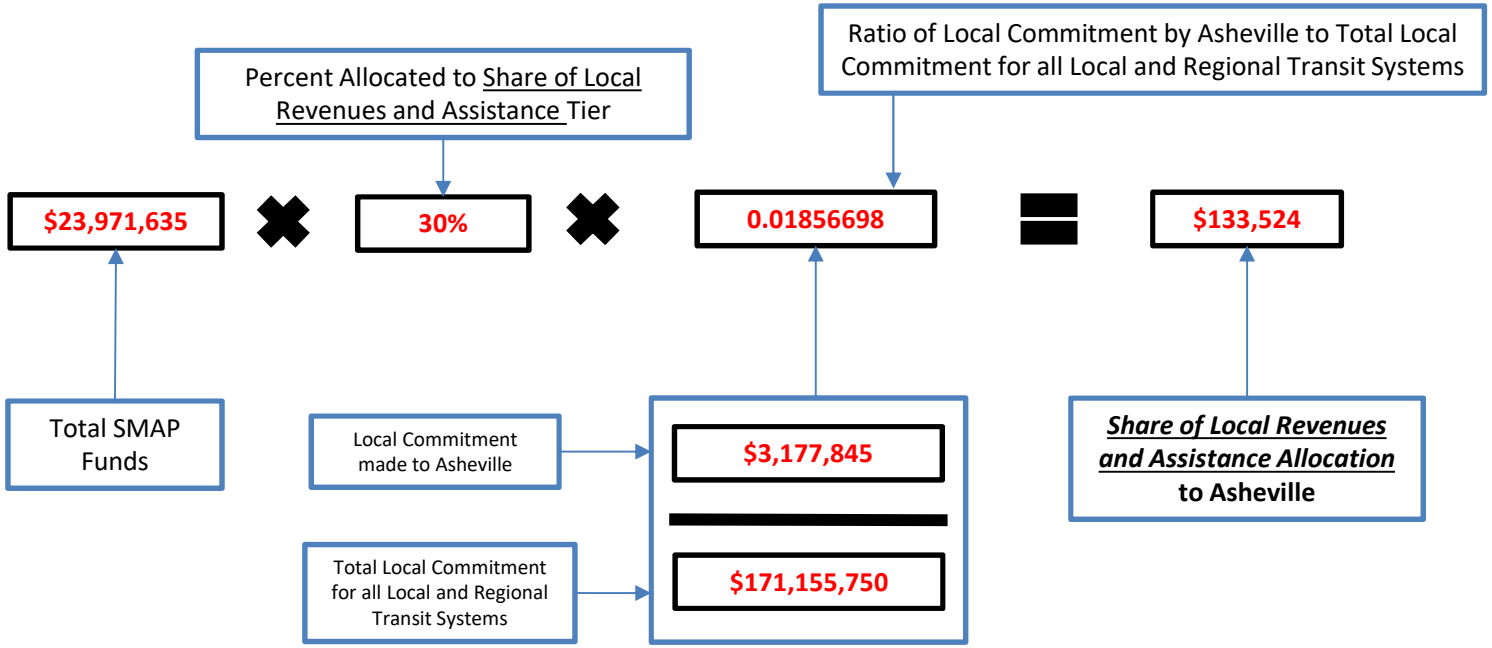
Allocation Tier B - Share of Local Revenues and Assistance

- This allocation formula distributes revenue to each Transit System based on the amount of local commitment provided to that system
  - Allocation to each Local or Regional transit system is calculated by first dividing the local commitment provided to that system by the sum of the local commitment provided by all Local and Regional Transit Systems across North Carolina
  - The amount of funds available for this allocation tier (30% of total SMAP funds) are then distributed proportionally to each Local or Regional Transit System based on the ratio calculated above

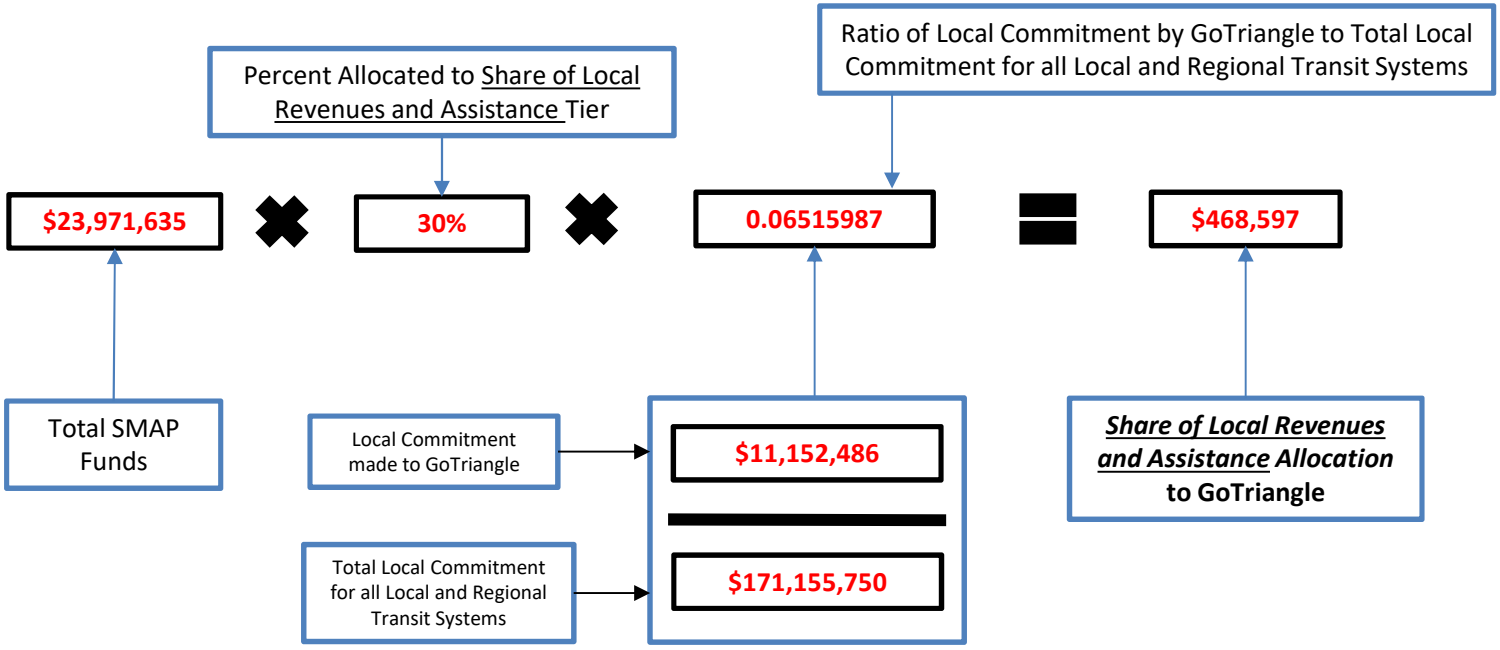
Allocation Tier B – Share of Local Revenues and Assistance



LOCAL SYSTEM EXAMPLE: ASHEVILLE (FY 19 ALLOCATION)



REGIONAL SYSTEM EXAMPLE: GOTRIANGLE (FY 19 ALLOCATION)



Allocation Tier C – Net Cost per Unlinked Passenger Trip

Local Transit Systems

Allocation Tier C – Net Cost per Unlinked Passenger Trip
Local Transit Systems

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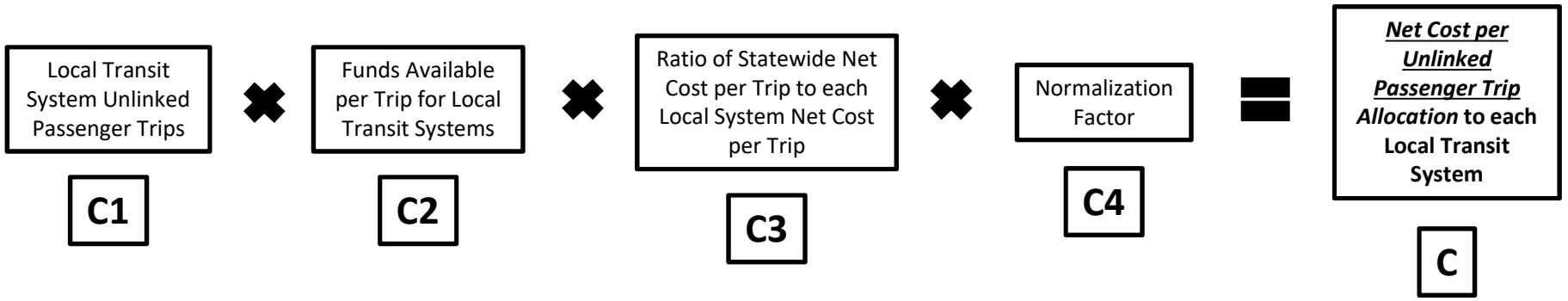
- For this Tier, revenue is disbursed to each Local Transit System based on the *Net Cost* per Unlinked Passenger Trip* by that System
- This Performance Tier for each Local Transit System is the product of four values:
  - **Unlinked Passenger Trips;**
  - **Funds Available per Trip;**
  - **Ratio of Statewide Net Cost per Trip to each Local Transit System Net Cost per Trip; and**
  - **A normalization factor.**

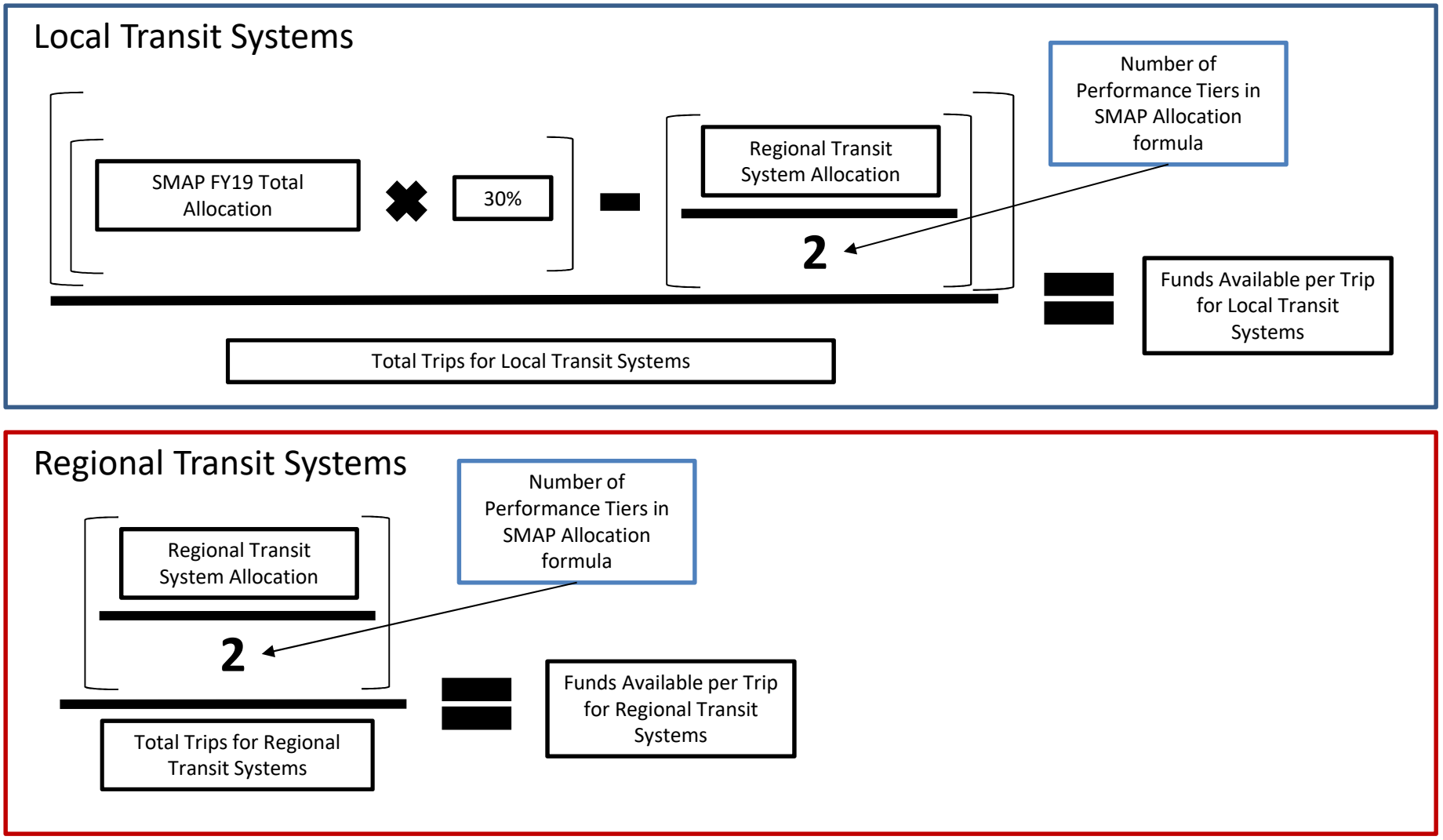
*Net Cost = (total fixed-route expenses) – (fixed-route fares) – (other fixed-route operating revenues)

Allocation Tier C – Net Cost per Unlinked Passenger Trip
Local Transit Systems

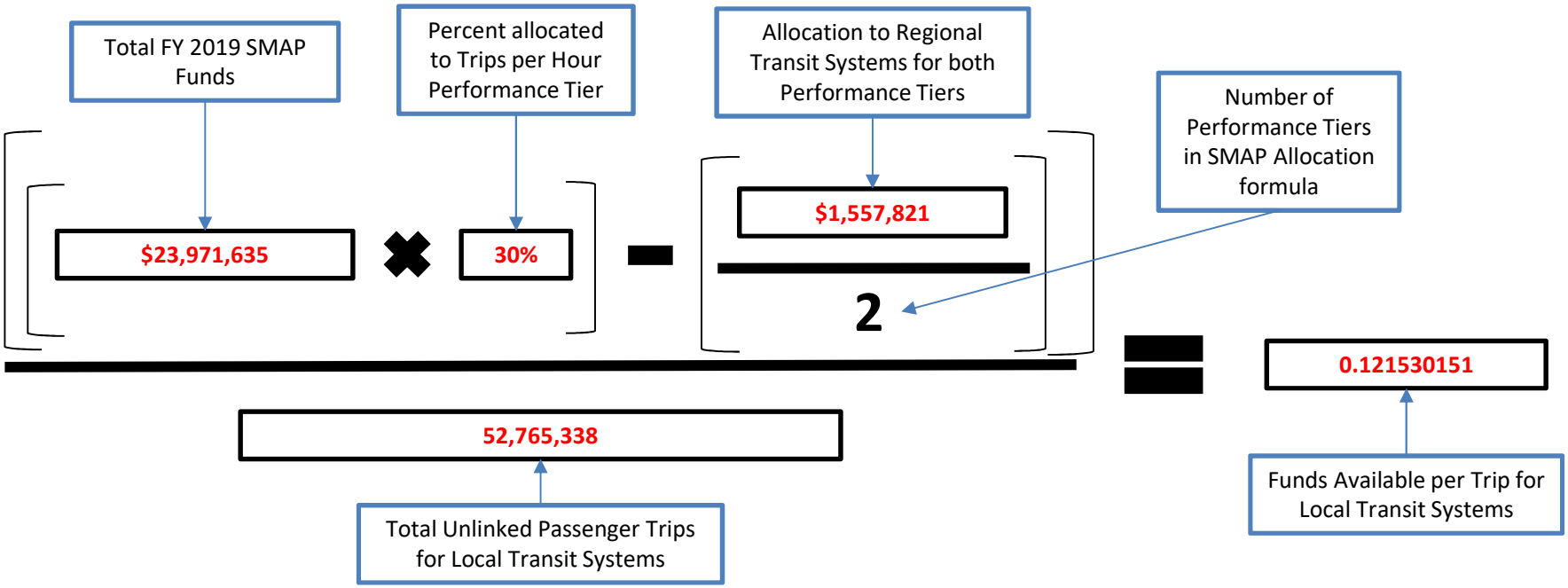


- Funds available per trip for Regional Transit Systems and Local Transit Systems are calculated differently
- Regional Transit Systems:
  - Determine the total amount allocated to all Regional Transit Systems for the Net Cost Per Trip allocation tier
  - Divide by the total statewide Regional Transit System trips
- Local Transit Systems:
  - Determine total allocation to the Funds Available per Trip Performance Tier
  - Subtract amount allocated to Regional Transit Systems
    - The remaining amount is allocated to Local Transit Systems
  - Divide by the total statewide Local transit system trips

C2 – Funds Available per Trip for Local and Regional Transit Systems

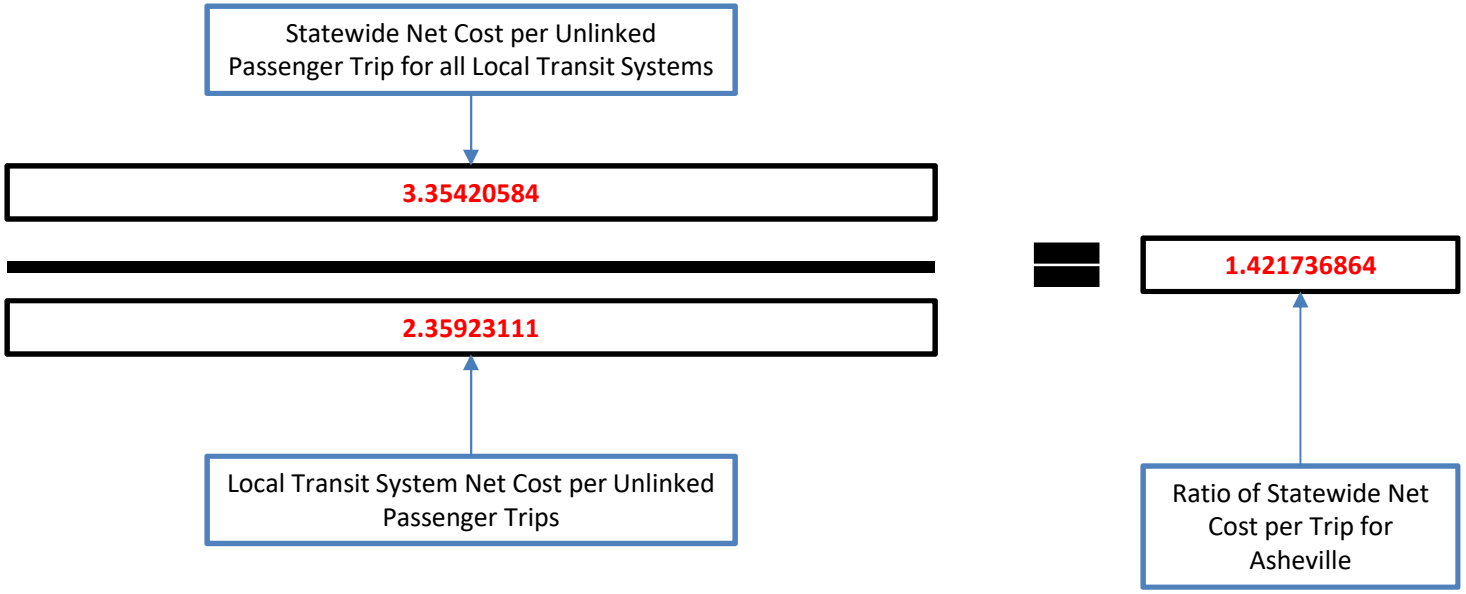


EXAMPLE: LOCAL TRANSIT SYSTEM



C3 – Ratio of Statewide Net Cost per Trip to each Local Transit System Net Cost per Trip

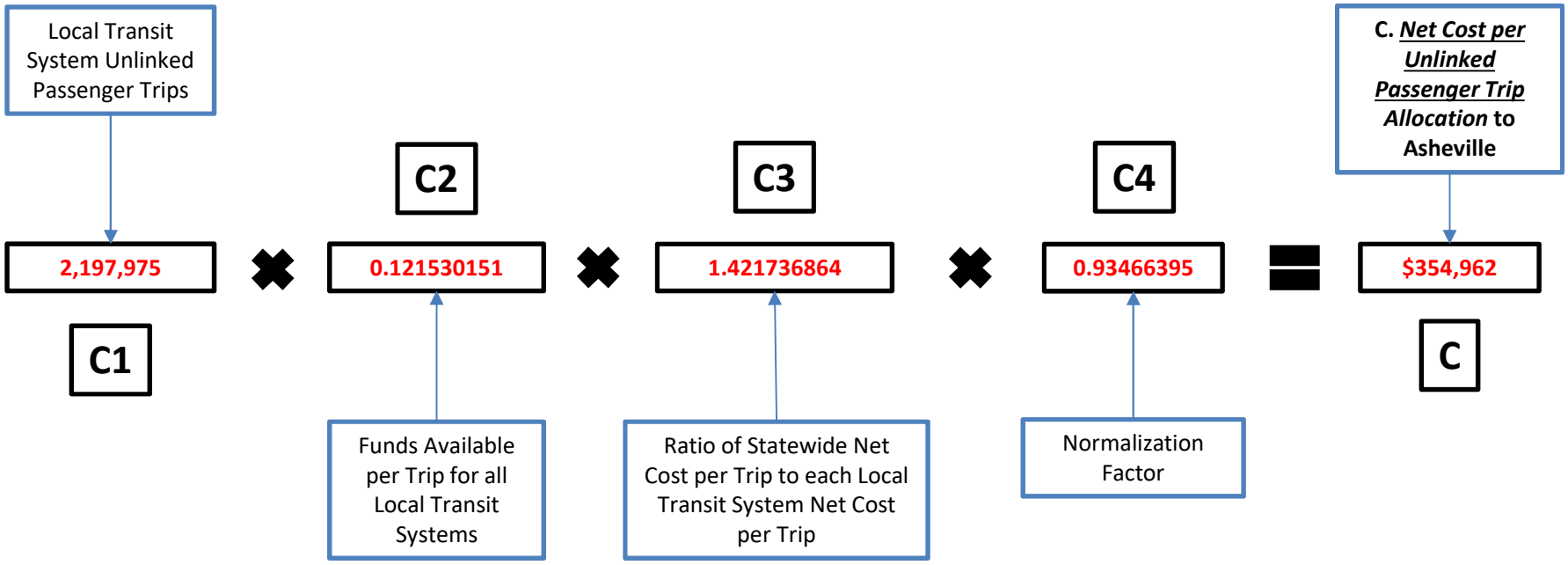
LOCAL EXAMPLE: ASHEVILLE (FY 19 ALLOCATION)



- The sum of C3 values for all transit systems is greater than the amount available for the performance tier (base distribution). Therefore, a normalization factor (C4) must be applied to limit the total allocation to the funds available.
- The normalization factor is calculated first by subtracting the funds available for the regional transit systems from the total available for the Net Cost per Trip Performance Tier. The result is then divided by the sum of the base distribution for all Local Transit Systems.

Allocation Tier C – Net Cost per Unlinked Passenger Trip
Local Transit Systems

LOCAL EXAMPLE: ASHEVILLE (FY 19 ALLOCATION)



Allocation Tier C – Net Cost per Unlinked Passenger Trip

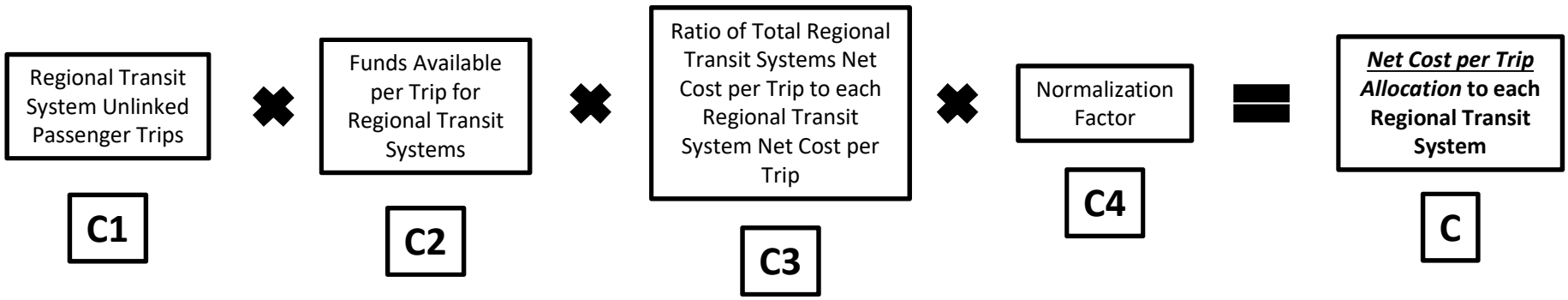
Regional Transit Systems

Allocation Tier C – Net Cost per Unlinked Passenger Trip for Regional Transit Systems

- For this Tier, revenue is disbursed to each Local Transit System based on the *Net Cost* per Unlinked Passenger Trip* by that System
- This Performance Tier for each Regional Transit System is the product of four values:
  - **Unlinked Passenger Trips;**
  - **Funds Available per Trip;**
  - **Ratio of Statewide Net Cost per Trip to each Local Transit System Net Cost per Trip; and**
  - **A normalization factor.**

*Net Cost = (total fixed-route expenses) – (fixed-route fares) – (other fixed-route operating revenues)

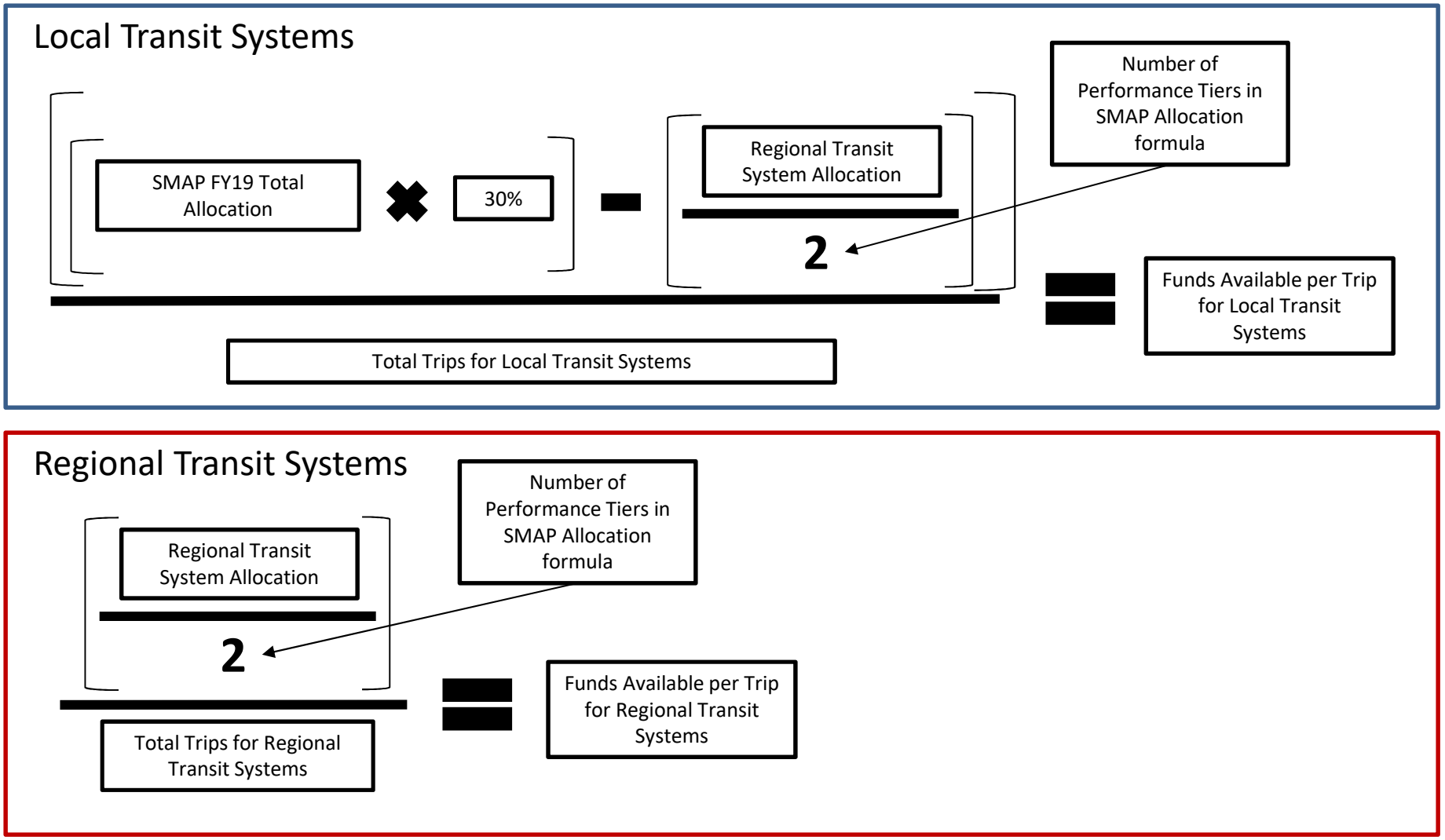
Allocation Tier C – Net Cost per Unlinked Passenger Trip for Regional Transit Systems



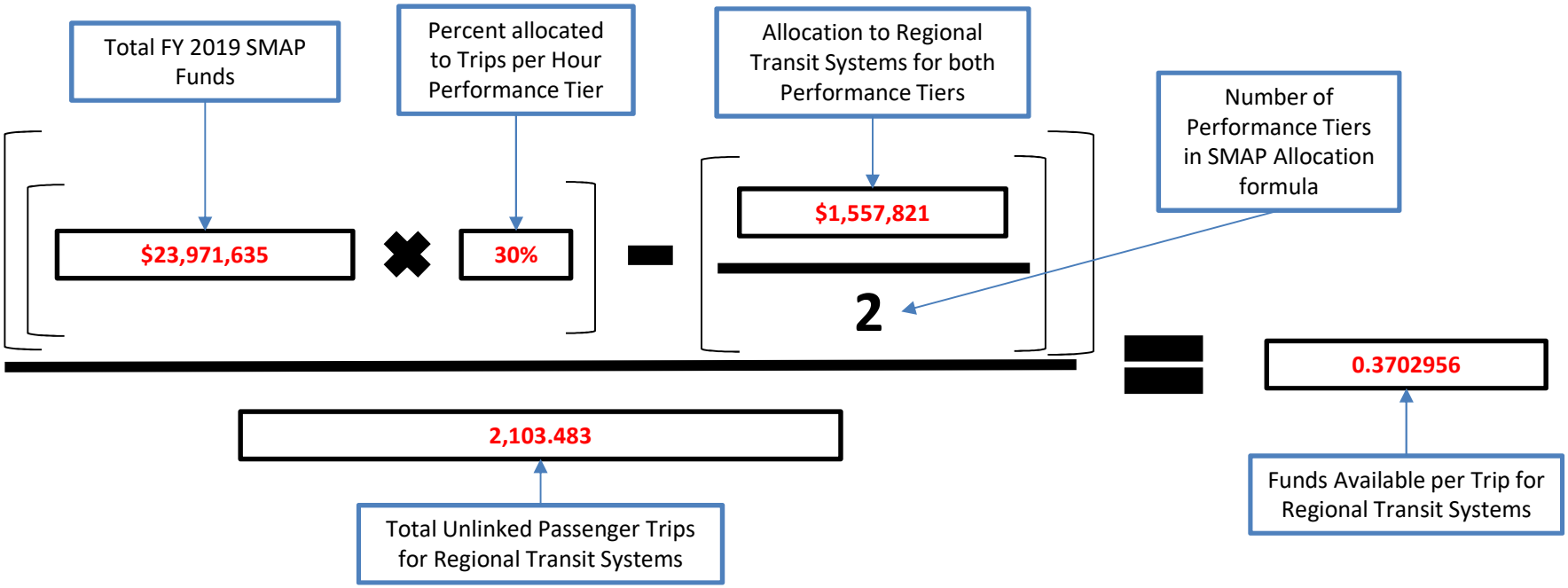
Allocation Tier C – Net Cost per Unlinked Passenger Trip for Regional Transit Systems

- Funds available per trip for Regional Transit Systems and Local Transit Systems are calculated differently
- Regional Transit Systems:
  - Determine the total amount allocated to all Regional Transit Systems for the Net Cost Per Trip allocation tier
  - Divide by the total statewide Regional Transit System trips
- Local Transit Systems:
  - Determine total allocation to the Funds Available per Trip Performance Tier
  - Subtract amount allocated to Regional Transit Systems
    - The remaining amount is allocated to Local Transit Systems
  - Divide by the total statewide Local transit system trips

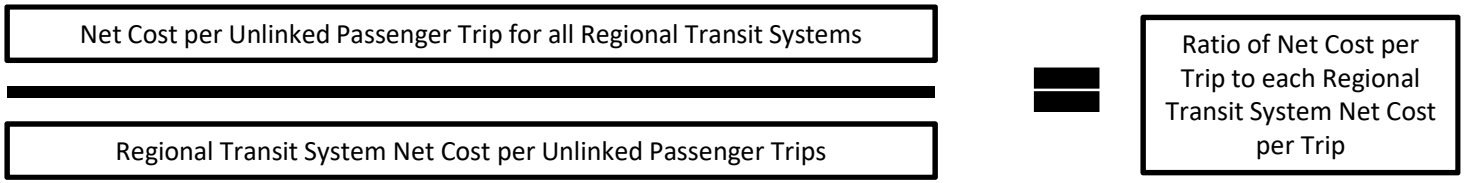
C2 – Funds Available per Trip for Local and Regional Transit Systems



EXAMPLE: REGIONAL TRANSIT SYSTEM

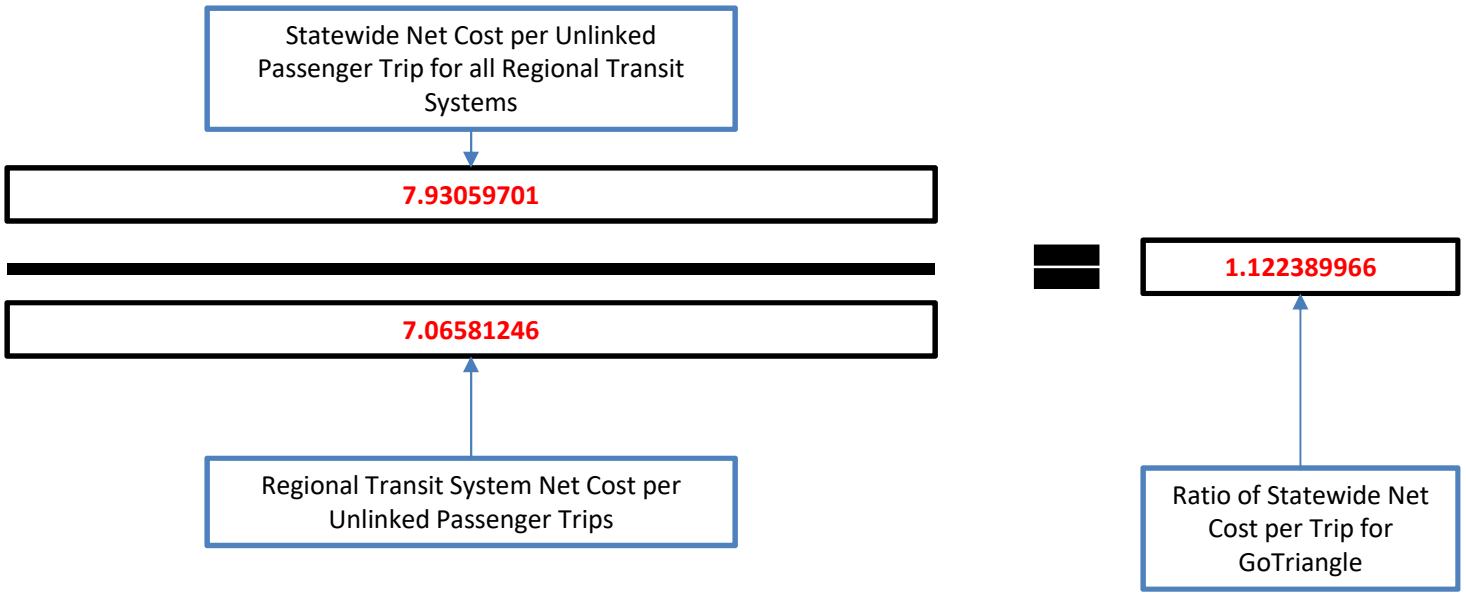


C3 – Ratio of Statewide Net Cost per Trip to Regional Transit System Net Cost per Trip



C3 – Ratio of Statewide Net Cost per Trip to each Local Transit System Net Cost per Trip

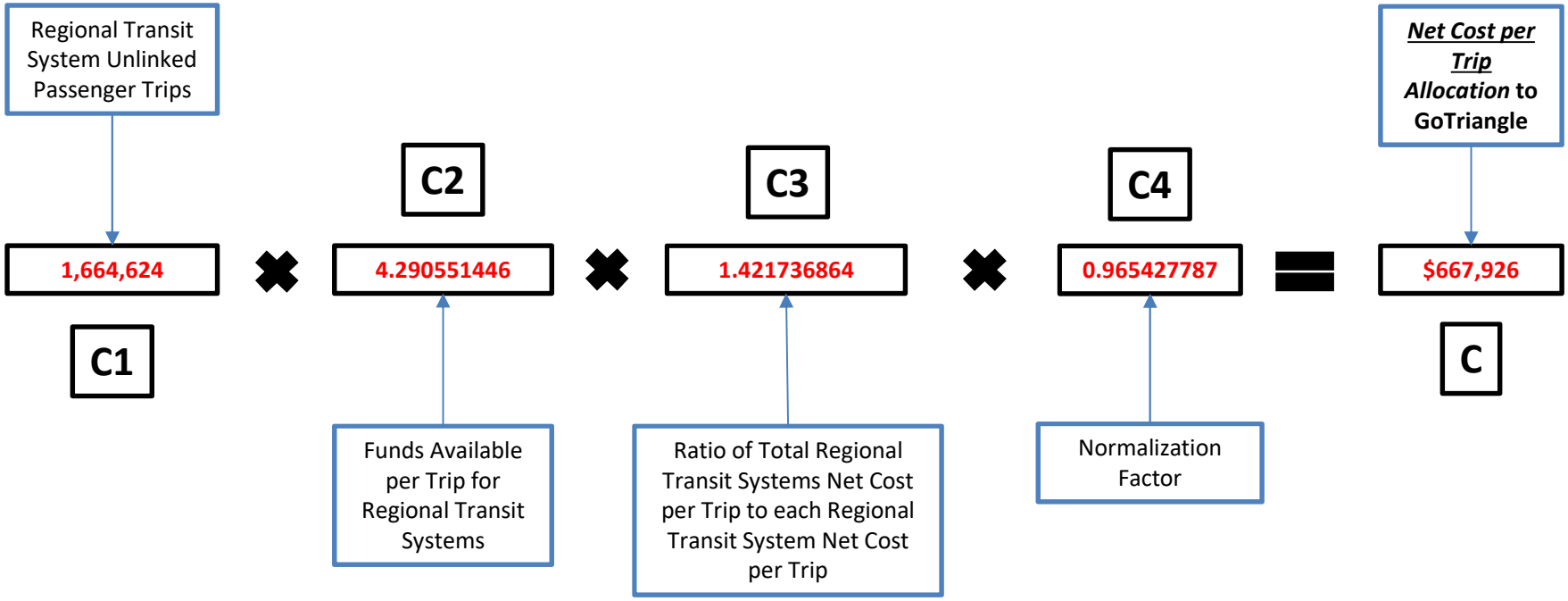
REGIONAL EXAMPLE: GOTRIANGLE (FY 19 ALLOCATION)



- The sum of C3 values for all transit systems is greater than the amount available for the performance tier (base distribution). Therefore, a normalization factor (C4) must be applied to limit the total allocation to the funds available.
- The normalization factor is calculated first by subtracting the funds available for the regional transit systems from the total available for the Net Cost per Trip Performance Tier. The result is then divided by the sum of the base distribution for all Local Transit Systems.

Allocation Tier C – Net Cost per Unlinked Passenger Trip for Regional Transit Systems

REGIONAL EXAMPLE: GOTRIANGLE (FY 19 ALLOCATION)

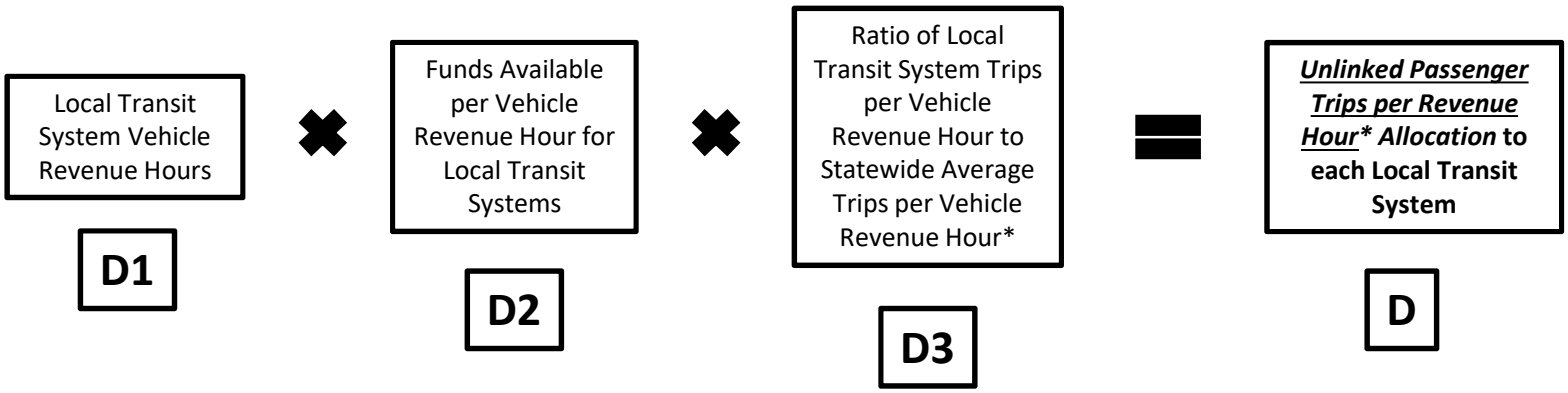


Allocation Tier D - Unlinked Passenger Trips per Vehicle Revenue Hour

Local Transit Systems

- Allocation Tier D is performance-based, meaning that revenue allocated under this Tier is based on factors related to how that Transit System is performing
- Thirty percent of SMAP funds are allocated to all transit systems within the Unlinked Passenger Trips per Revenue Hour Performance Tier.
- The Regional Transit System allocation, divided by 2, is subtracted from the total allocation to determine the amount available for Local Transit systems.
- The total allocation to Local Transit Systems is then divided by the Total Vehicle Revenue Hours for Local Transit Systems to determine the Funds Available per Vehicle Revenue Hour.

Allocation Tier D – Unlinked Passenger Trips per Vehicle Revenue Hour



*Although the formula uses trips per hour, the calculation actually reduces to and is solely based on trips.

D2 – Funds Available per Vehicle Revenue Hour

- Calculate funds available per vehicle revenue hour for Regional Transit Systems and Local Transit Systems separately
- Regional Transit Systems:
  - Determine the total amount allocated to all Regional Transit Systems
  - Divide by the total statewide Regional Transit System vehicle revenue hours
- Local Transit Systems:
  - Determine total allocation to the Funds Available per Vehicle Revenue Hour Performance Tier
  - Subtract amount allocated to Regional Transit Systems
    - The remaining amount is allocated to Local Transit Systems
  - Divide by the total statewide Local transit system vehicle revenue hours

D2 – Funds Available per Vehicle Revenue Hour

Local Transit Systems

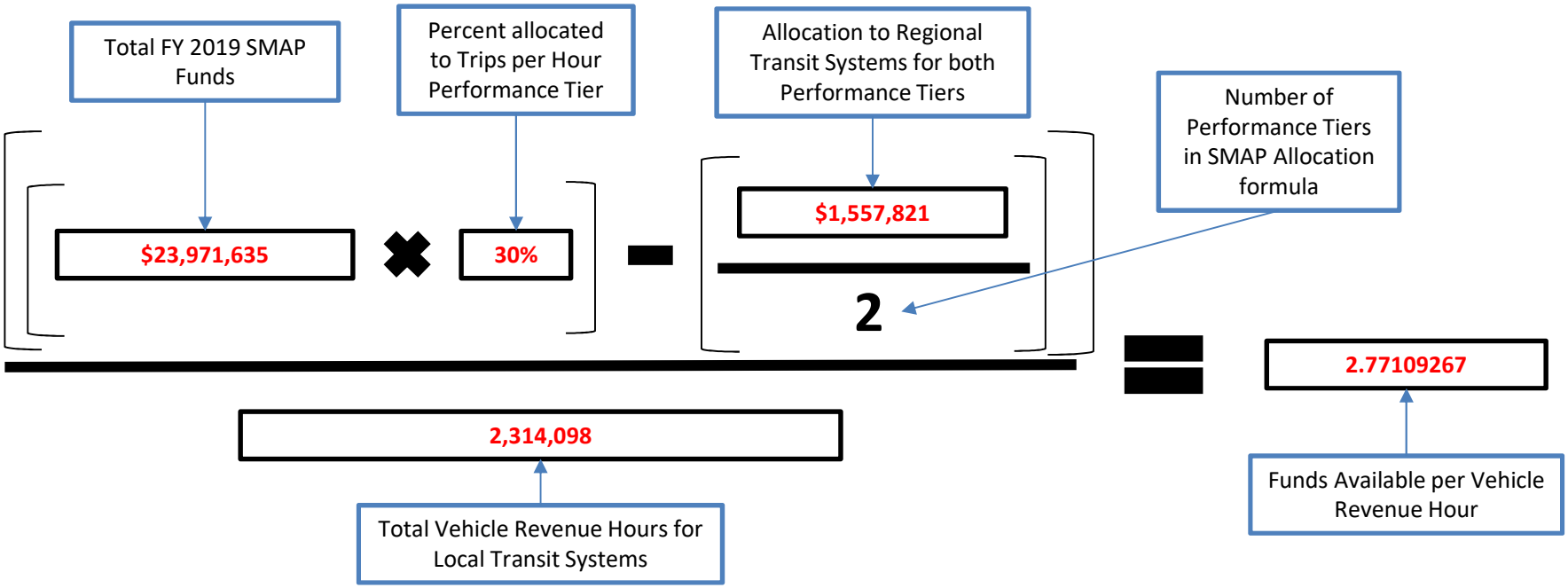
$$\frac{\left[\text{SMAP FY19 Total Allocation} \times 30\% - \frac{\text{Regional Transit System Allocation}}{2}\right]}{\text{Total Vehicle Revenue Hours for Local Transit Systems}} = \text{Funds Available per Vehicle Revenue Hour for Local Transit Systems}$$

Regional Transit Systems

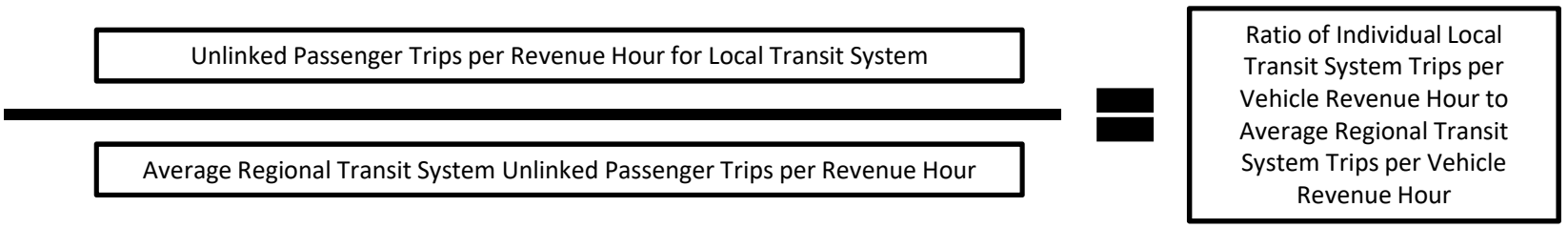
$$\frac{\frac{\text{Regional Transit System Allocation}}{2}}{\text{Total Vehicle Revenue Hours for Regional Transit Systems}} = \text{Funds Available per Vehicle Revenue Hour for Regional Transit Systems}$$

D2 – Funds Available per Vehicle Revenue Hour

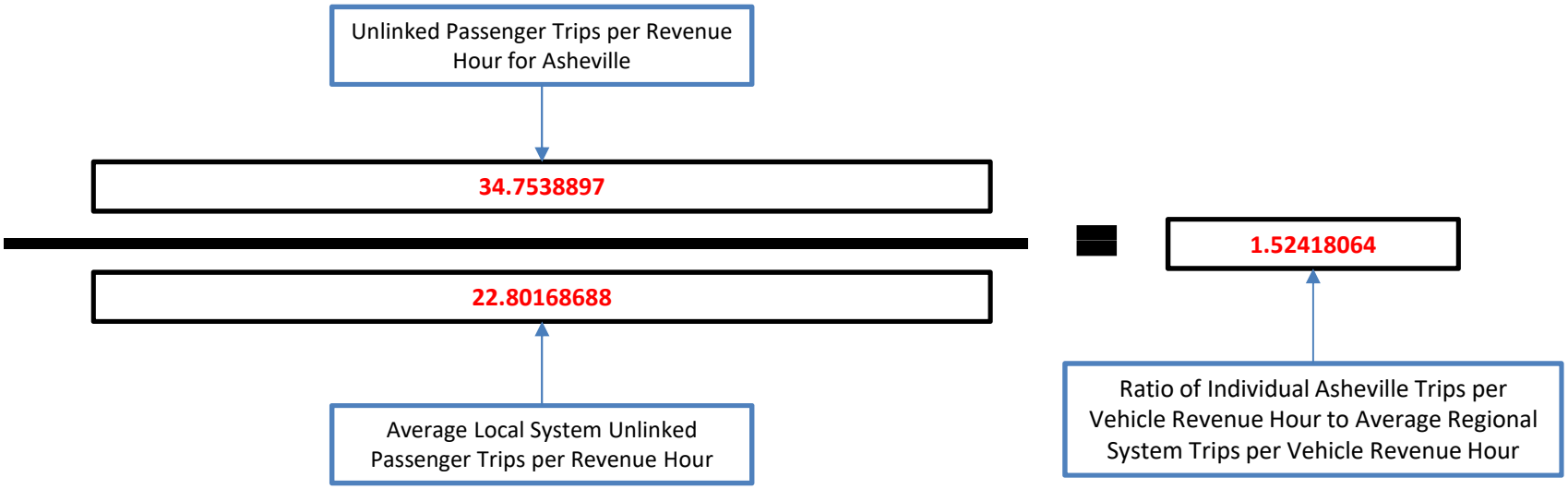
EXAMPLE: LOCAL TRANSIT SYSTEM



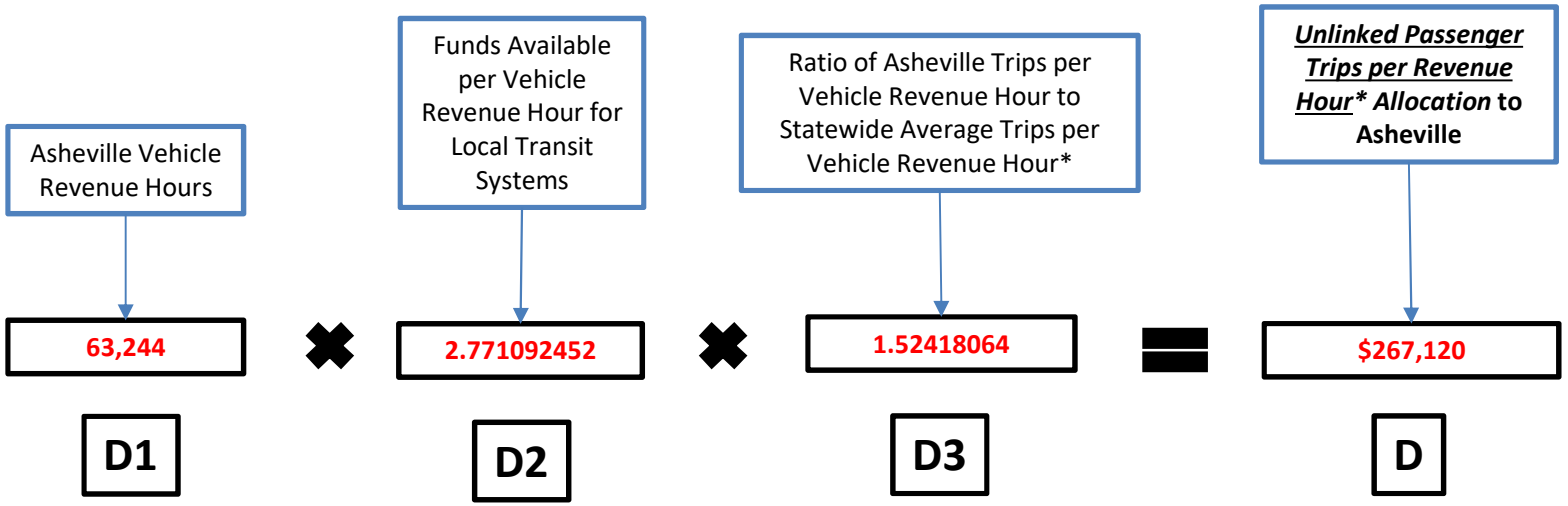
D3 - Ratio of Regional Transit System Trips per Hour to Statewide Average Trips per Vehicle Revenue Hour



EXAMPLE – ASHEVILLE (FY 19 ALLOCATION)



Allocation Tier D – Unlinked Passenger Trips per Vehicle Revenue Hour



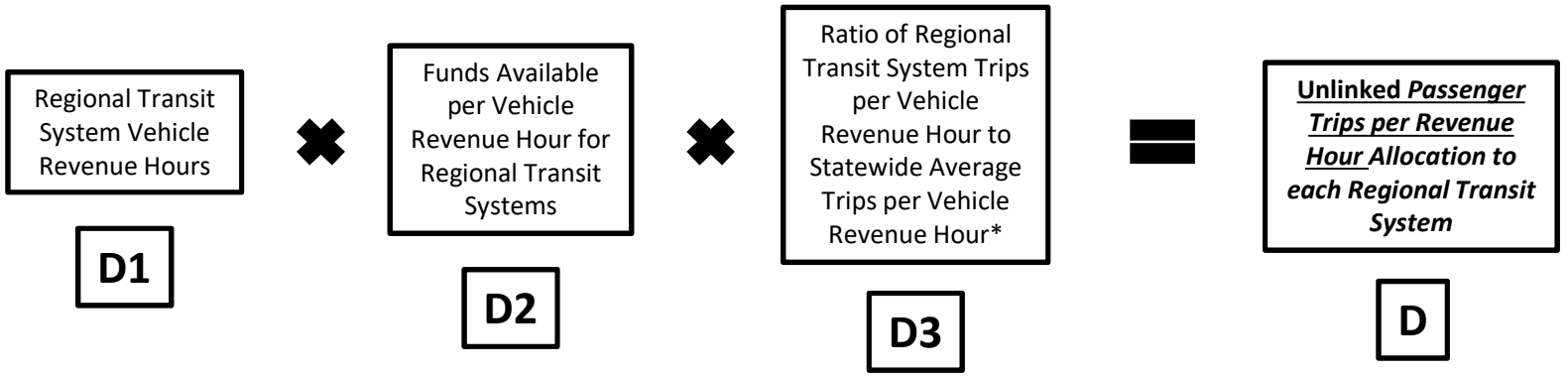
LOCAL EXAMPLE: ASHEVILLE (FY 19 ALLOCATION)

*Although the formula uses trips per hour, the calculation actually reduces to and is solely based on trips.

Allocation Tier D - Unlinked Passenger Trips per Vehicle Revenue Hour

Regional Transit Systems

Allocation Tier D – Unlinked Passenger Trips per Vehicle Revenue Hour



***Note:** Although the formula uses trips per hour, the calculation actually reduces to and is solely based on trips.

D2 – Funds Available per Vehicle Revenue Hour

Local Transit Systems

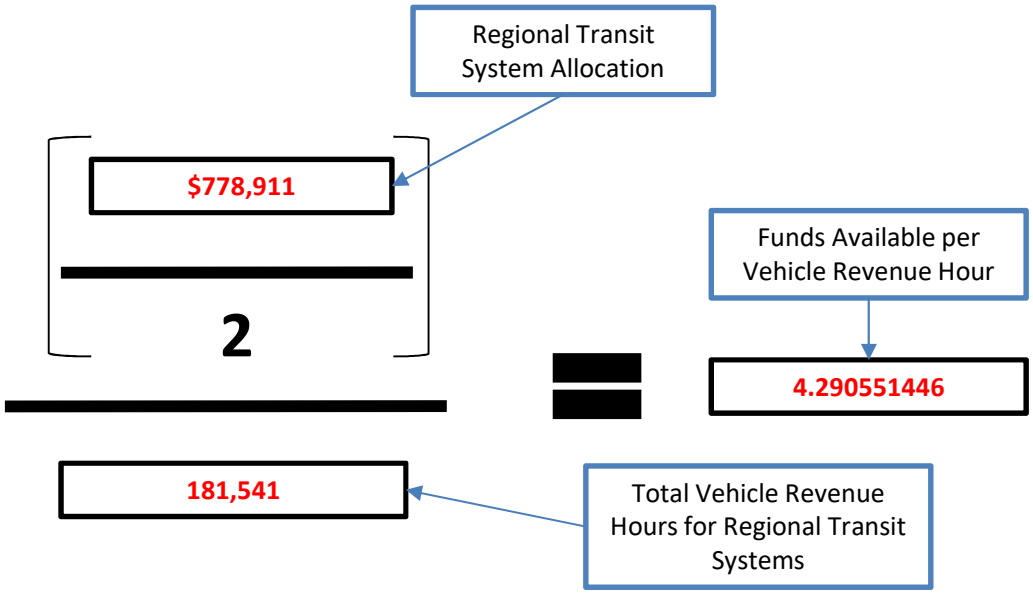
$$\frac{\left[\text{SMAP FY19 Total Allocation} \times 30\% - \frac{\text{Regional Transit System Allocation}}{2}\right]}{\text{Total Vehicle Revenue Hours for Local Transit Systems}} = \text{Funds Available per Vehicle Revenue Hour for Local Transit Systems}$$

Regional Transit Systems

$$\frac{\frac{\text{Regional Transit System Allocation}}{2}}{\text{Total Vehicle Revenue Hours for Regional Transit Systems}} = \text{Funds Available per Vehicle Revenue Hour for Regional Transit Systems}$$

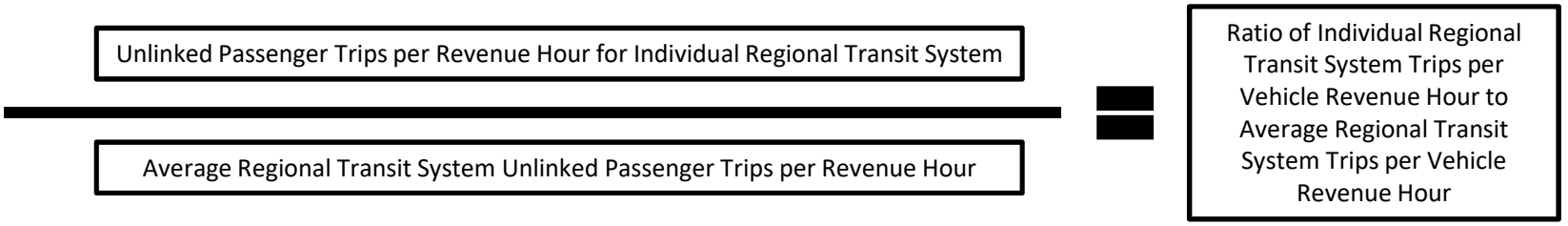
D2 – Funds Available per Vehicle Revenue Hour

EXAMPLE: REGIONAL TRANSIT SYSTEM

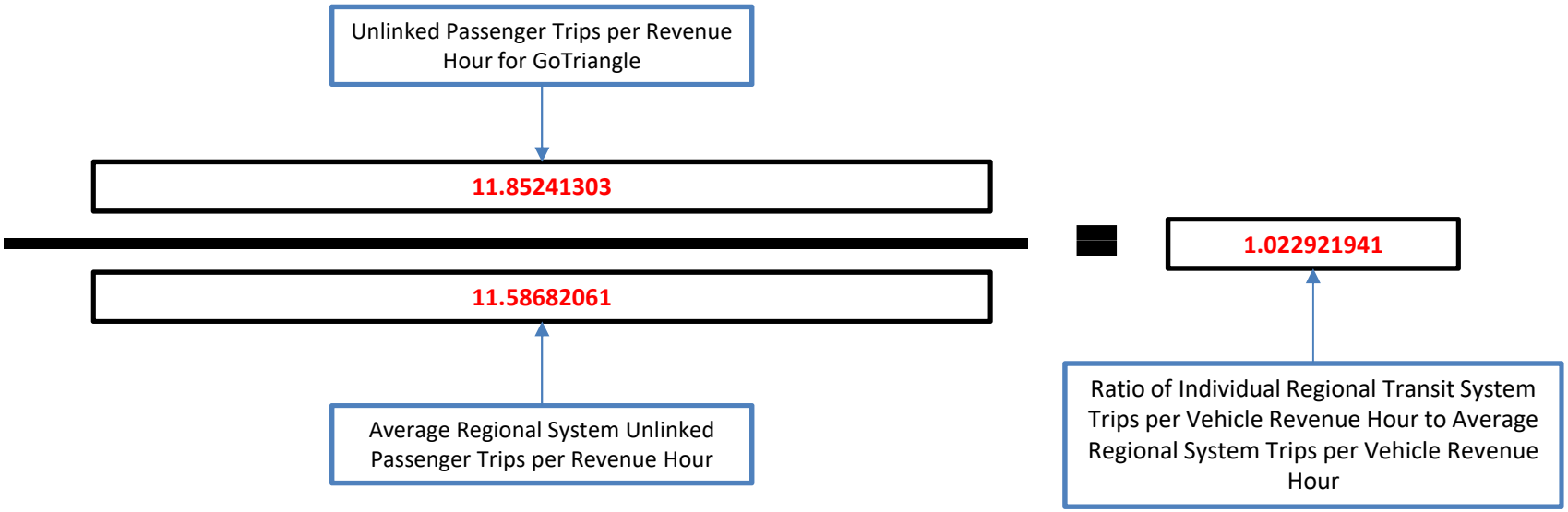


***Note:** Although the formula uses trips per hour, the calculation actually reduces to and is solely based on trips.

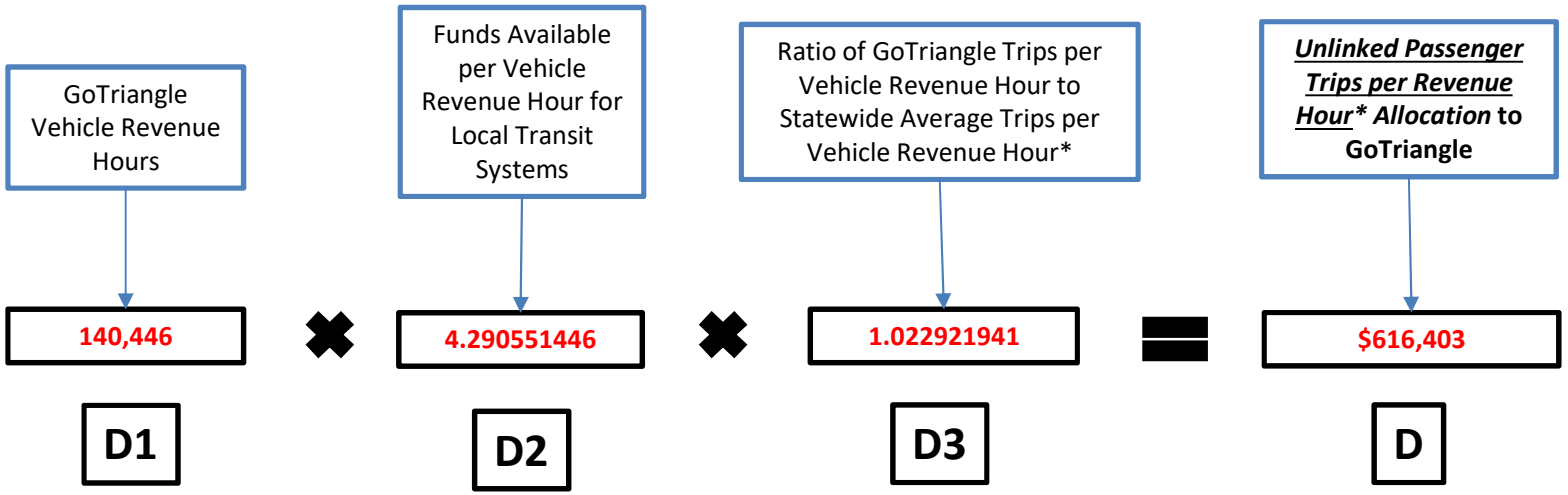
D3 – Ratio of Regional Transit System Trips per Hour to Statewide Average Trips per Vehicle Revenue Hour



EXAMPLE – GOTRIANGLE (FY 19 ALLOCATION)



Allocation Tier D – Unlinked Passenger Trips per Vehicle Revenue Hour



REGIONAL EXAMPLE: GOTRIANGLE (FY 19 ALLOCATION)

*Although the formula uses trips per hour, the calculation actually reduces to and is solely based on trips.

TECHNICAL FORMULAS

Technical Formulas

SERVICE

M_i^τ = *Fixed Route Revenue Miles for Transit System i*

M_i^ϱ = *Fixed Route Revenue Miles for Regional Transit System i* 5.)

M^σ = *Statewide Revenue Miles* 6.)

$R^{M,\varrho}$ = *Percent Regional Transit System Revenue Miles* 7.)

H_i^τ = *Fixed Route Revenue Hours for Transit System i*

H_i^ϱ = *Fixed Route Revenue Hours for Regional Transit System i*

H^τ = *Statewide Transit System Revenue Hours* 8.)

H^ϱ = *Statewide Regional Transit System Revenue Hours* 9.)

V^τ = *Funds Available per TS Vehicle Revenue Hour* 10.)

V^ϱ = *Funds Available per RTS Vehicle Revenue Hour* 11.)

T^τ = *Funds Available per TS Unlinked Passenger Trip* 12.)

T^ϱ = *Funds Available per RTS Unlinked Passenger Trip* 13.)

U_i^τ = *Unlinked Passenger Trips for Transit System i*

U_i^ϱ = *Unlinked Passenger Trips for Regional Transit System i*

U^τ = *Statewide Transit System Unlinked Passenger Trips* 14.)

U^ϱ = *Statewide RTS Unlinked Passenger Trips* 15.)

Ω = *Total SMAP Allocation*

Ω^{-1} = *Previous Year's Total SMAP Allocation*

$R_i^{\eta,\tau}$ = *Ratio of TpH for TS i to Statewide Average* 16.)

$A_i^{\eta,\tau}$ = *TpH Allocation Amount for Transit System i* 17.)

$R_i^{\eta,\varrho}$ = *Ratio of TpH for RTS i to Statewide Average* 18.)

$A_i^{\eta,\varrho}$ = *TpH Allocation Amount for Regional Transit System i* 19.)

$R_i^{\upsilon,\tau}$ = *Ratio of NCpT for Statewide Average to TS i* 20.)

$A_i^{\upsilon,\tau}$ = *NCpT Allocation Amount for Transit System i* 21.)

$R_i^{\upsilon,\varrho}$ = *Ratio of NCpT for Statewide Average to RTS i* 22.)

$A_i^{\upsilon,\varrho}$ = *NCpT Allocation Amount for RTS i* 23.)

$R_i^{\lambda,\tau}$ = *Ratio of Local Commitment for TS i to Statewide Total* 24.)

$A_i^{\lambda,\tau}$ = *Local Share Allocation Amount for Transit System i* 25.)

$A_i^{\varepsilon,\tau}$ = *Equal Share Allocation Amount for Transit System i* 26.)

Amount Allocated to each tier

- $t_i = tier\ i\ percent\ allocation, i = 1..4$

Trips per Hour Allocation (TpH) -- performance tier

- Statewide Trips per Hour Allocation: $A^\eta = \Omega * t_1$ 27.)
- RTS Trips per Hour Allocation: $A^{\eta,\varrho} = \frac{t_1}{t_1+t_2}(R^{M,\varrho} * t_1 * \Omega)$ 28.)
- Transit System Trips per Hour Allocation: $A^{\eta,\tau} = A^\eta - A^{\eta,\varrho}$ 29.)

Net Cost per Trip Allocation (NCpT) -- performance tier

- Statewide Net Cost per Trip Allocation: $A^\upsilon = \Omega * t_2$ 30.)
- RTS Net Cost per Trip Allocation: $A^{\upsilon,\varrho} = \frac{t_2}{t_1+t_2}(R^{M,\varrho} * t_2 * \Omega)$ 31.)
- TS Net Cost per Trip Allocation: $A^{\upsilon,\tau} = A^\upsilon - A^{\upsilon,\varrho}$ 32.)

Local Share Allocation

- $A^\lambda = \Omega * t_3$ 33.)

Equal Share Allocation

- $A^\varepsilon = \Omega * t_4$ 34.)

Amount allocated to each transit system based on Unlinked Passenger Trips per Hour for Transit Systems $A_i^{\eta,\tau}$ and Regional Transit Systems $A_i^{\eta,\varrho}$

- *Statewide Revenue Miles*: $M^\sigma = \sum M_i^\tau + \sum M_i^\varrho$ 6.)
- *Ratio of RTS Revenue Miles to Statewide Total*: $R^{M,\varrho} = \frac{\sum M_i^\varrho}{M^\sigma} = \frac{\sum M_i^\varrho}{\sum M_i^\tau + \sum M_i^\varrho}$ 7.)
- *TpH Allocation for RTS*: $A^{\eta,\varrho} = \frac{t_1}{t_1+t_2}(R^{M,\varrho} * t_1 * \Omega)$ 28.)
- *Funds available per TS Vehicle Revenue Hour*: $V^\tau = \frac{A^{\eta,\tau}}{\sum H_i^\tau}$ 10.)
- *Funds available per RTS Vehicle Revenu Hour*: $V^\varrho = \frac{A^{\eta,\varrho}}{\sum H_i^\varrho}$ 11.)
- *Unlinked Passenger Trips per Hour for TS i*: $P_i^\tau = \frac{U_i^\tau}{H_i^\tau}$ 35.)
- *Statewide Transit System UPT per Hour*: $P^\tau = \frac{U^\tau}{H^\tau} = \frac{\sum U_i^\tau}{\sum H_i^\tau}$ 36.)
- *Ratio of TpH for TS i to Statewide TS Average*: $R_i^{\eta,\tau} = \frac{P_i^\tau}{P^\tau}$ 16.)
- *Unlinked Passenger Trips per Hour for RTS i*: $P_i^\varrho = \frac{U_i^\varrho}{H_i^\varrho}$ 37.)
- *Statewide RTS UPT per Hour*: $P^\varrho = \frac{U^\varrho}{H^\varrho} = \frac{\sum U_i^\varrho}{\sum H_i^\varrho}$ 38.)

Technical Formulas (Cont.)

- $Ratio\ of\ TpH\ for\ RTS\ to\ Statewide\ Average: R_i^{\eta,\varrho} = \frac{P_i^{\varrho}}{P^{\varrho}}$ 18.)
- $UPT/Hour\ \ Allocation\ for\ TS\ i: A_i^{\eta,\tau} = H_i^{\tau} * V^{\tau} * R_i^{\eta,\tau}$ 17.)
- $UPT/Hour\ \ Allocation\ for\ RTS\ i: A_i^{\eta,\varrho} = H_i^{\varrho} * V^{\varrho} * R_i^{\eta,\varrho}$ 19.)

Amount allocated to each transit system based on the ratio of the statewide net cost per trip to their net cost per trip for Transit Systems: $A_i^{\upsilon,\tau}$ and Regional Transit Systems: $A_i^{\upsilon,\varrho}$

- $Statewide\ Revenue\ Miles: M^{\sigma} = \sum M_i^{\tau} + \sum M_i^{\varrho}$ 6.)
- $Ratio\ of\ RTS\ Revenue\ Miles\ to\ Statewide\ Total: R^{M,\varrho} = \frac{\sum M_i^{\varrho}}{M^{\sigma}} = \frac{\sum M_i^{\varrho}}{\sum M_i^{\tau} + \sum M_i^{\varrho}}$ 7.)
- $NCpT\ Allocation\ for\ RTS: A^{\upsilon,\varrho} = \frac{t_2}{t_1+t_2}(R^{M,\varrho} * t_2 * \Omega)$ 31.)
- $Funds\ available\ per\ TS\ Unlinked\ Passenger\ Trip: T^{\tau} = \frac{A^{\upsilon,\tau}}{\sum H_i^{\tau}}$ 12.)
- $Funds\ available\ per\ RTS\ Unlinked\ Passenger\ Trip: T^{\varrho} = \frac{A^{\upsilon,\varrho}}{\sum H_i^{\varrho}}$ 13.)
- $Net\ Cost\ per\ UPT\ for\ Transit\ System\ i: C_i^{\tau} = \frac{N_i^{\tau}}{U_i^{\tau}}$ 39.)
- $Statewide\ Transit\ System\ NCpT: C^{\tau} = \frac{N^{\tau}}{U^{\tau}} = \frac{\sum N_i^{\tau}}{\sum U_i^{\tau}}$ 40.)
- $Ratio\ of\ NCpT\ for\ Statewide\ Average\ to\ TS\ i: R_i^{\upsilon,\tau} = \frac{C^{\tau}}{C_i^{\tau}}$ 20.)
- $Net\ Cost\ per\ UPT\ for\ Regional\ Transit\ System\ i: C_i^{\varrho} = \frac{N_i^{\varrho}}{U_i^{\varrho}}$ 41.)
- $Statewide\ Regional\ Transit\ System\ NCpT: C^{\varrho} = \frac{N^{\varrho}}{U^{\varrho}} = \frac{\sum N_i^{\varrho}}{\sum U_i^{\varrho}}$ 42.)
- $Ratio\ of\ NCpT\ for\ Statewide\ Average\ to\ RTS\ i: R_i^{\upsilon,\varrho} = \frac{C^{\varrho}}{C_i^{\varrho}}$ 22.)
- $Pre-norm\ NCpT\ Allocation\ for\ TS\ i: B_i^{\tau} = U_i^{\tau} * T^{\tau} * R_i^{\upsilon,\tau}$ 43.)
- $Net\ Cost\ per\ Trip\ Allocation\ for\ TS\ i: A_i^{\upsilon,\tau} = \frac{A^{\upsilon,\tau}}{\sum B_i^{\tau}} * B_i^{\tau}$ 21.)
- $Pre-norm\ NCpT\ Allocation\ for\ RTS\ i: B_i^{\varrho} = U_i^{\varrho} * T^{\varrho} * R_i^{\upsilon,\varrho}$ 44.)
- $Net\ Cost\ per\ Trip\ Allocation\ for\ RT\ i: A_i^{\upsilon,\varrho} = \frac{A^{\upsilon,\varrho}}{\sum B_i^{\varrho}} * B_i^{\varrho}$ 23.)

Amount allocated to each transit system based on their proportion of the statewide Local Share: $A_i^{\lambda,\tau}$

- $Local\ Commitment\ for\ Transit\ System\ i: L_i^{\tau} = X_i^{\tau} - F_i^{\tau} - S_i^{\tau}$ 45.)
- $Statewide\ Local\ Commitment: L^{\sigma} = \sum L_i^{\tau} = \sum (X_i^{\tau} - F_i^{\tau} - S_i^{\tau})$ 46.)
- $Total\ SMAP\ Allocation: \Omega = \sum A_i^{\tau} + \sum A_i^{\varrho}$ 47.)

- Ratio of Local Commitment for TS i to Statewide Total: $R_i^{\lambda,\tau} = \frac{L_i^{\tau}}{L^{\sigma}} = \frac{X_i^{\tau} - F_i^{\tau} - S_i^{\tau}}{\Sigma(X_i^{\tau} - F_i^{\tau} - S_i^{\tau})}$ 24.)
- $Local\ Share\ Allocation\ for\ TS\ i: A_i^{\lambda,\tau} = R_i^{\lambda,\tau} * A^{\lambda}$ 25.)

Amount allocated to each transit system based on their proportion of the statewide equal share allocation amount:

- Transit System Equal Share Allocation: $A_i^{\varepsilon,\tau} = \frac{A^{\varepsilon}}{Cnt(\tau)+Cnt(\varrho)}$ 26.)

Total SMAP Allocation

- $\boldsymbol{Total\ SMAP\ Allocation\ for\ TS\ i: A_i^{\tau} = A_i^{\eta,\tau} + A_i^{\upsilon,\tau} + A_i^{\lambda,\tau} + A_i^{\varepsilon,\tau}}$
- $\boldsymbol{Total\ SMAP\ Allocation\ for\ RTS\ i: A_i^{\varrho} = A_i^{\eta,\varrho} + A_i^{\upsilon,\varrho} + A_i^{\lambda,\tau} + A_i^{\varepsilon,\tau}}$

Contact Information

Kai Monast, MRP
Program Manager
Public Transportation Group
North Carolina State University
Institute for Transportation Research and Education
(919) 515-8768
kcmonast@ncsu.edu

Jeremy Scott
Research Associate
Visual Analytics, Modeling, and Simulation
North Carolina State University
Institute for Transportation Research and Education
(919) 515-8624
jscott@ncsu.edu