Conceptual Funding Allocation Models for
Rewarding High Performance under SB1140

The funding allocation scenarios discussed at the June 17 TSDAC meeting reward agencies for improved performance. A concern was addressed that the scenarios do not reward agencies for existing high performance. The Committee expressed a desire to explore methods by which existing high performance can be rewarded.

To assess whether or not an agency is performing at a high level, it is necessary to establish an expectation of performance. This expectation of performance serves as a point of comparison against which an agency's level of performance can be assessed. Establishing the point of comparison is the critical step in this process.

This memo discusses three concepts for funding allocation models that reward high performance:

- Concept 1: Use national benchmark groups to establish point of comparison
    - The basis of this concept is to assess the strength of each agency's performance by comparing it to agencies with similar service area environments. An agency that performs at a high level compared to similar agencies nationwide would be considered a high performing agency.
- Concept 2: Develop a statistical model to establish performance expectation
    - The basis of this concept is to establish an expected range of performance for each agency based on its service area environment. This range of expected performance would be developed using the statistical technique of multiple regression modeling. The strength of each agency's performance would be assessed by comparing it to the expected performance range established by the statistical model. An agency that performs at a level above its expected range of performance would be considered a high performing agency.
- Concept 3: Use similar Virginia-based agencies to establish point of comparison
    - The basis of this concept is identical to that of Concept 1 - to assess the strength of each agency's performance by comparing it to agencies with similar service area environments. Concept 3 differs from Concept 1 in the following manner: Instead of comparing agency performance to that of similar agencies nationwide, Concept 3 compares agency performance to that of similar agencies in Virginia. An agency that performs at a high level compared to its most similar Virginia-based agencies would be considered a high performing agency.

Each of these concepts also rewards year-to-year improvement.

These concepts are described below.

Concept 1: Use National Benchmark Groups to Establish Point of Comparison

The basis of this concept is to assess the strength of each agency's performance by comparing it to agencies with similar service area environments. An agency that performs at a high level compared to similar agencies nationwide would be considered a high performing agency.

The following steps describe a methodology that could be used to implement this concept.

1. Create unique benchmark groups for each Virginia agency
    a. Create benchmark groups based on the factors described in TCRP Report 141: "A Methodology for Performance Measurement and Peer Comparison in the Public Transportation Industry". The factors used to select benchmark agencies are listed in Appendix A.
    b. Include only non-Virginia agencies in benchmarking groups
    c. Include in the benchmark group the 5 agencies that are most similar to the Virginia agency being assessed
2. Calculate the performance profile of each agency's benchmark group
    a. Obtain 5 years of data for each of the 5 benchmark agencies. This will provide 25 data points with which to create a performance profile.
    b. Identify each benchmark group's minimum and maximum performance levels for each performance metric
3. Designate the benchmark group's performance profile as a fixed point of comparison
    a. The benchmark group's performance profile is used as the measuring stick against which to assess whether or not an agency is performing at a high level
4. Determine each agency's potential allocation base share
    a. Assign a base share of the total funds available to each agency that is proportional to each agency's size using the agreed-upon sizing factor
        i. For example, if Operating Cost is used as the sizing factor, an agency whose operating cost was 1.2% of the total statewide operating cost would have a base share equivalent to 1.2% of the total available funds
    b. This base share represents the potential amount that could be allocated to an agency
    c. It is not guaranteed that an agency will be allocated the full amount of the base share
    d. The portion of the base share allocated to an agency will be based on the agency's performance relative to the performance profile of its benchmark group
5. Establish a performance scale based on the performance profile of each benchmark group
    a. The benchmark group's minimum performance level would be defined as 0% performance
    b. The benchmark group's maximum performance level would be defined as 100% performance
    c. Performance in between the benchmark group's minimum and maximum performance levels would be assigned a percentage score proportional to their location on the minimum-maximum scale

        i. For example, a performance level that is halfway between the benchmark group's minimum and maximum would equate to a performance score of 50%. A performance level that is three quarters of the way from the benchmark group's minimum and its maximum would equate to a performance score of 75%.
    d. Note
        i. The performance scale created based on each benchmark group's performance profile would remain the same from year to year. This will result in the point of comparison for each agency remaining fixed from year to year, thus providing a consistent point (and pre-established standard) against which to measure agency performance and improvement.
            1. The benchmark group performance profile could be updated periodically to "recalibrate the system" as needed or desired (such as every five years)
6. Allocate funding based on each agency's performance relative to its benchmark group's performance profile
    a. Allocate base share funding to each agency in proportion to its benchmark group performance score
        i. An agency with a performance score of 75%, for example, would be allocated 75% of its base share
        ii. An agency with a performance score of 100% or more would be allocated 100% of its base share (such an agency would be considered "best in class")
        iii. An agency with a performance score of 0% or less would be allocated 0% of its base share

[Note: A simpler version of Steps 5 and 6 is as follows:
- Establish Low, Middle, and High performance zones based on the benchmark group's performance profile
- Allocate funds based on the following:
    - Agencies with performance in the Low zone would receive 33% of their base share
    - Agencies with performance in the Middle zone would receive 66% of their base share
    - Agencies with performance in the High zone would receive 100% of their base share
- An alternative would be to establish four performance zones, with allocations 25%, 50%, 75%, and 100% of the base share in each successive zone]

7. Perform steps 2 – 6 for each performance metric that is evaluated
8. Allocate remaining funds
    a. There will be unallocated funds remaining after performing the above steps (unless every agency is best in class for every metric and is thus awarded 100% of their base shares). A methodology needs to be developed for allocating these remaining funds. Possibilities include:
        i. Distribute 50% of the remaining funds as bonuses to agencies that exhibit the highest degrees of improvement and 50% as bonuses to agencies that exhibit the highest levels of performance

        ii. Distribute in a discretionary fashion based on DRPT priorities
9. Self-Comparison is built in to this process
    a. As an agency improves from year to year its performance score will increase, which will result in the agency receiving a larger portion of it's base share
        i. For example, an agency whose performance score increases from 65% to 70% from one year to the next will receive a commensurately larger portion of its base share than in the previous year
10. Examples
    a. Examples for several agencies illustrating this concept are being created and will be sent in a separate e-mail

Concept 2: Develop a Statistical Model to Establish Performance Expectation

The basis of this concept is to establish an expected range of performance for each agency based on its service area environment. This range of expected performance would be developed using the statistical technique of multiple regression modeling. The strength of each agency's performance would be assessed by comparing it to the expected performance range established by the statistical model. An agency that performs at a level above its expected range of performance would be considered a high performing agency.

The following steps describe a methodology that could be used to implement this concept.

1. Build a regression model that predicts performance based on input factors that reflect service area environment
    a. The factors used to determine benchmark agencies in Concept 1 (as recommended in TCRP Report 141) would serve as the input factors for building the model. These factors are listed in Appendix A.
    b. The purpose of using these input factors is to address the concern expressed by TSDAC members that service area factors (such as population density, service area type [rural, suburban, or urban], presence of a college, etc.) influence the level at which an agency will perform
2. Calculate an expected range of performance for each agency
    a. Input each agency's unique service area environment elements into the model
    b. Use the model to calculate each agency's expected performance range based on its unique service area characteristics
3. Determine each agency's potential allocation base share
    a. Use the process described in Step 4 of Concept 1
4. Establish a performance scale based on the performance profile of each benchmark group
    a. This can be done in several ways. A simple version would to establish three performance zones based on the expected performance range.

        i. An agency performing below the expected performance range would be classified as "Below Expectation"
        ii. An agency performing within the expected performance range would be classified as "Meeting Expectation"
        iii. An agency performing above the expected performance range would be classified as "Above Expectation"
5. Allocate funding based on each agency's performance zone
    a. Agencies with performance "Below Expectation" would receive 33% of their base share
    b. Agencies with performance "At Expectation" would receive 66% of their base share
    c. Agencies with performance "Above Exectation" would receive 100% of their base share
6. Perform steps 2 – 5 for each performance metric that is evaluated
7. Allocate remaining funds
    a. There will be unallocated funds remaining after performing the above steps (unless every agency is Above Expectation for every metric and is thus awarded 100% of their base shares). A methodology needs to be developed for allocating these remaining funds. Possibilities include:
        i. Distribute 50% of the remaining funds as bonuses to agencies that exhibit the highest degrees of improvement and 50% as bonuses to agencies that exhibit the highest levels of performance
        ii. Distribute in a discretionary fashion based on DRPT priorities
8. Self-Comparison is built in to this process
    a. As an agency improves from year to year its performance compared to expectation will increase
        i. Using the three zone system will result in thresholds that agencies must surpass before advancing to the next funding level. Adjustments to the process can be made to reward improvement within performance zones.

Concept 3: Use Similar Virginia-Based Agencies to Establish Point of Comparison

The basis of this concept is identical to that of Concept 1 - to assess the strength of each agency's performance by comparing it to agencies with similar service area environments. Concept 3 differs from Concept 1 in the following manner: Instead of comparing agency performance to that of similar agencies nationwide, Concept 3 compares agency performance to that of similar agencies in Virginia. An agency that performs at a high level compared to its most similar Virginia-based agencies would be considered a high performing agency.

The following steps describe a methodology that could be used to implement this concept.

1. Create a benchmark group for each agency
    a. Create benchmark groups based on the factors described in TCRP Report 141: "A Methodology for Performance Measurement and Peer

Comparison in the Public Transportation Industry". The factors used to select benchmark agencies are listed in Appendix A.

b. Include in the benchmark group the 2 to 5 Virginia-based agencies that are most similar to the agency being assessed
c. Note: This differs from the peer group concept explored in SJ297 in that it does not establish a handful of fixed peer groups into which all agencies must fit. Under this concept, each agency will have a unique benchmark group consisting of the 2 to 5 agencies in Virginia to which it is most similar.

2. Follow Steps 2 to 9 of the methodology described in Concept 1

Appendix A: Factors for Selecting Benchmarking Agencies

TCRP Report 141: A Methodology for Performance Measurement and Peer Comparison in the Public Transportation Industry describes a methodology for selecting benchmarking agencies. This methodology uses a set of 14 factors to identify agencies with similar service environments. These factors are listed below.

<u>Factors for Identifying Benchmarking Agencies</u>

- Urban area population
- Total annual vehicle miles operated
- Annual operating budget
- Population density
- Service area type
- State capital (yes/no)
- Percent college students
- Population growth rate
- Percent low-income population
- Annual roadway delay hours per traveler
- Freeway lane miles per capita
- Percent service demand-responsive
- Percent service purchased
- Distance from benchmarking agency