



**SPECIAL BOARD MEETING
SEPTEMBER 22, 2005**

SUBJECT: TRANSIT SERVICE POLICY

ACTION: ADOPT PROPOSED CHANGES TO TRANSIT SERVICE POLICY

RECOMMENDATION

Adopt proposed changes to the Transit Service Policy.

ISSUE

In May 2005, the Special Master ordered Metro to amend its Transit Service Policy to revise the Route Productivity Index methodology and to incorporate procedures for determining the net benefit to transit dependent riders of service change programs.

POLICY IMPLICATIONS

The recommended changes will conform the Transit Service Policy to the requirements of the Consent Decree. The revised Route Performance Index incorporates load factor compliance as part of a bus route's overall performance rating. This change will improve the score of individual bus routes that have a high rate of compliance, and reduce the number of bus routes not meeting the minimum standard. The new methodology for evaluating the net benefit to transit dependent riders of service change programs will result in a more consistent evaluation and promote more balanced service change programs.

OPTIONS

The order requiring changes to the policy was specific and available alternatives are very limited.

FINANCIAL IMPACT

The revised Transit Service Policy does not require changes to the FY06 budget.

BACKGROUND

The Board of Directors adopted the updated Transit Service Policy on January 25, 2005. The policy guides decision-making during the service change process and promotes consistency among Service Sectors. The Transit Service Policy was evaluated by the Special Master to

determine its consistency with the Consent Decree. On May 26, 2005, the Special Master issued a ruling on the policy. The ruling directs Metro to modify the Route Performance Index to include consideration of load factor compliance, and to develop a methodology and process for determining the net benefit to transit dependent riders of recent and future service change programs. The amended Transit Service policy is to be submitted to the Special Master by September 30, 2005.

The Route Performance Index is a measure used to determine the relative performance of a bus route and to identify bus routes requiring corrective action during the service change process. The existing index is based on the weighted average of three factors: boardings per service hour, passenger miles per seat mile, and subsidy per passenger. To conform with the Special Master's latest order, a fourth factor, percent of observed time periods conforming to the Consent Decree load factor standard, has been included in the Route Performance Index (Attachment 1).

To comply with the requirement to assess impacts to the transit dependent, staff has developed a methodology and process for determining the net benefit to transit dependent riders of service change programs (Attachment 2). Factors considered in the evaluation include such things as: average trip length, passenger wait time, transfer requirements, changes in walk distance, and others. The impact analysis is to be conducted by each of the Service Sectors. A series of standardized worksheets are used to determine ridership impacts. The worksheets are designed to translate the impacts into increases or decreases in annual person minutes of travel. Increased travel time is considered to be a negative impact and reduced travel time represents a rider benefit.

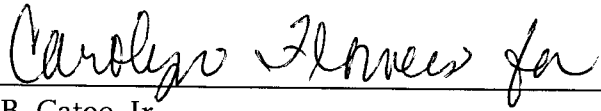
NEXT STEPS

The changes to the policy will become effective immediately upon Board approval. The methodology will be used to complete evaluations of the June 2003, February 2004, June 2004, and June 2005 service change programs. Results of the evaluations and revisions to the Transit Service Policy will be included in the September 30, 2005 submittal to the Special Master.

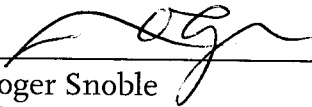
ATTACHMENT

1. Route Performance Index
2. Passenger Impact Analysis

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ATTACHMENT 1:

Route Performance Index



SECTION 3: BUS PERFORMANCE MEASURES

Performance measures are used to evaluate Metro bus service. They address customer satisfaction, passenger loading and productivity.

3.1 MYSTERY RIDER PROGRAM

An ongoing “Mystery Rider” survey has been developed to help evaluate product and service delivery, reward high quality performance, and identify service quality issues. The program uses a team of anonymous “mystery riders” who use the system and rate service from the customer’s perspective. The survey provides a detailed evaluation of operator-controlled issues (such as courtesy and safety) as well as maintenance issues (such as cleanliness and climate systems). Knowledge gained from these surveys will help to target service initiatives and training programs to improve customer satisfaction.



Beginning in FY 2005, mystery shoppers will perform approximately 50 observations per month throughout the system. Feedback from the surveys will be provided to Sector management for appropriate action, along with incentive rewards for operators and divisions scoring highly in the survey.

3.2 PASSENGER LOADING

Passenger loading is a measure of seating capacity on a bus or rail car. It is typically expressed as a percentage of the total passengers on board a vehicle compared to the seats available. These standards are set at a level to offer sufficient seating capacity on Metro Bus and Metro Rail lines to meet the need of Metro’s current and future riders, and ensure overcrowded vehicles do not discourage patronage.

Passenger Loading Standard

Service	Standard
Metro Bus	120%

The table above shows the current passenger loading standard for Metro Bus service.

3.3 PRODUCTIVITY GUIDELINES AND ANNUAL LINE REVIEW

Productivity guidelines are used to ensure that Metro services are effective and provide a reasonable return on investment. These measures are applied to all Metro bus routes in operation for more than a year.



These measures are used to flag problem services that are not performing up to expectations. Specific corrective actions are decided during the service change process. Corrective actions could include marketing, service restructuring, serving the demand with an alternative service or elimination of service. The chart on the following page outlines performance review process and the application of the minimum productivity standard for Metro bus service.

The evaluation process focuses on four factors:

Utilization of Resources – Passenger boardings per service hour is used as a measure to determine how effectively resources are being used. This measure is determined by dividing the total number of boardings on the line by the service hours operated. Routes having a higher number of passengers per hour represent a better utilization of resources such as buses, operators and fuel.

Utilization of Capacity – Passenger miles per seat miles is the measure used to evaluate how well the seating capacity of the system is being used. Passenger miles are calculated by multiplying the average distance traveled per passenger by the number of passengers using the service. Seat miles are calculated by determining the number of seats per vehicle by the number of service miles operated. The higher resulting number indicates greater utilization of system capacity.

Fiscal Responsibility – Subsidy per passenger is the measure for fiscal responsibility. Subsidy refers to the amount of public funding required to cover the difference between the cost of operation and the passenger revenues collected. Higher subsidy services require more public funding support.

Passenger Comfort– Load factor compliance to ensure that number of passengers on board do not exceed 120% of seating capacity in any 20 minute window during rush hours and 60 minute window during non-rush hours



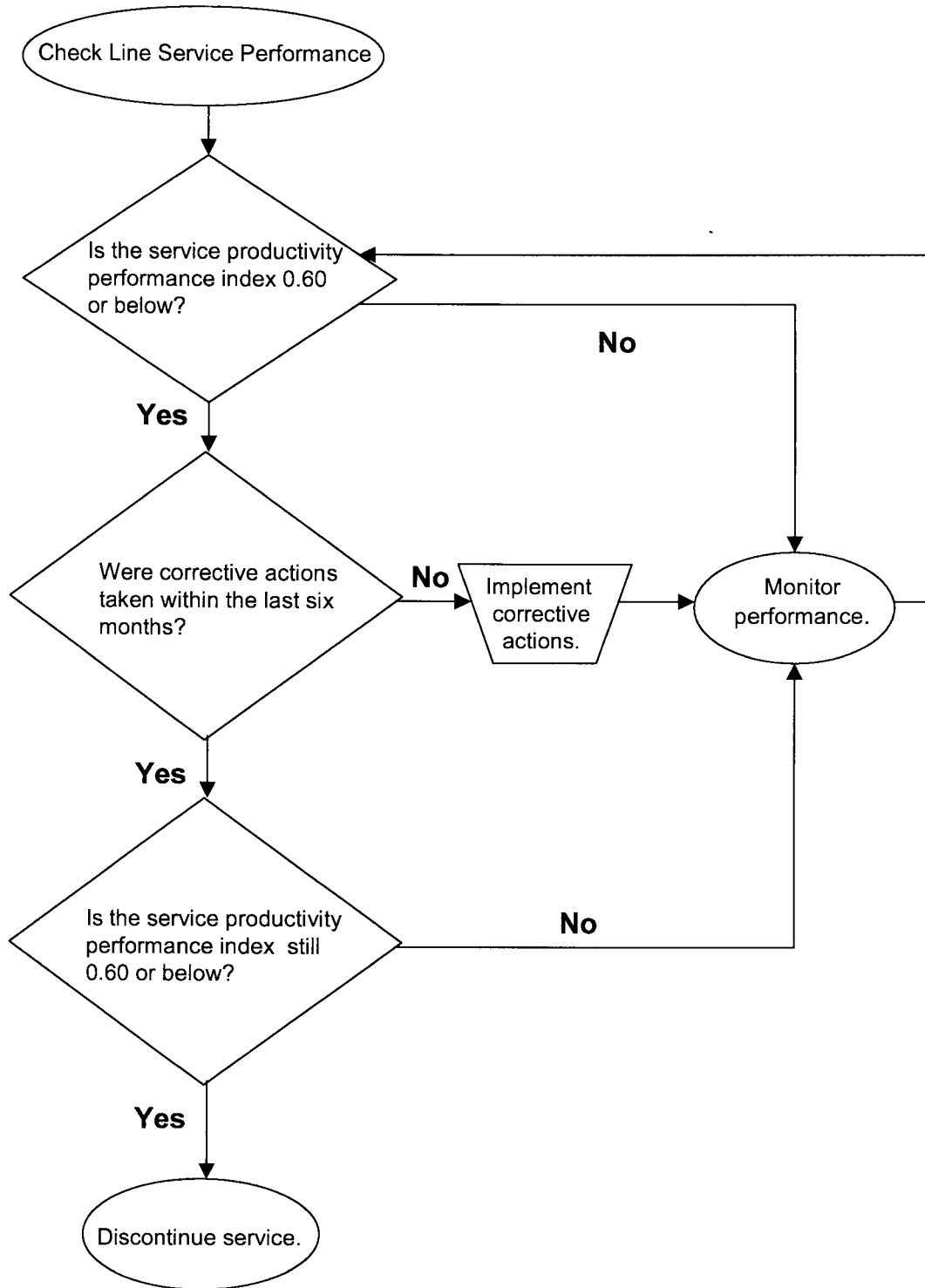
During the evaluation process, a route performance index is developed and used to objectively measure the performance of each route in the system, relative to other routes in the same category. The following categories are used during the performance evaluation process:

- Metro Express
- Metro Rapid
- Metro Local
- Metro Rail/Feeder Shuttles

Specific indices are developed for each measure and category of service performance. Lines with an index of 1.0 perform at the category average, while lines with an index of less than 1.0 perform below the average. Routes with a performance index lower than 0.6 are defined as performing poorly and targeted for corrective action. Lines that have been subjected to corrective actions and do not meet the 0.60 productivity index after six additional months of operation may be cancelled, subject to Sector Governance Council approval. Appendix C contains a more detailed discussion of how the productivity index is developed.



ANNUAL REVIEW PROCESS FOR METRO BUS LINES IN OPERATION FOR MORE THAN ONE YEAR



APPENDIX C: ROUTE PERFORMANCE INDEX

The route performance index is designed to provide an objective measure of a bus routes performance relative to other similar types of service. The index is based on system ridership and financial targets from the FY 2006 Operating Budget. The following categories are used during the performance evaluation process:

- Metro Express
- Metro Rapid
- Metro Local
- Metro Rail/Feeder Shuttles

The evaluation process focuses on four factors:

- **Utilization of Resources** – Boardings per service hour is used as a measure to determine how effectively resources are being used. This measure is determined by dividing the total number of boardings on the line by the service hours operated. Routes having a higher number of passengers per mile represent a better utilization of resources such as buses, operators and fuel.
- **Utilization of Capacity** - Passenger miles per seat miles is the measure used to evaluate how well the seating capacity of the system is being used. Passenger miles are calculated by multiplying the average distance traveled per passenger by the number of passengers using the service. Seat miles are calculated by determining the number of seats per vehicle and multiplying by the number of vehicles on the route and then by the number of service miles operated. The higher the resulting number, the greater the utilization of system capacity.
- **Fiscal Responsibility** - Subsidy per passenger is the measure for fiscal responsibility. Subsidy refers to the amount of public funding required to cover the difference between the cost of operation and the passenger revenues collected. Higher subsidy services require more public funding support.
- **Passenger Comfort**– Load factor compliance ratio to indicate percent of observed time interval with load ratio less than or equal to 1.20

The values for passengers per service hour, passenger miles per seat miles, and load factor compliance are normalized measures where the performance of the individual route is divided by the standard set for the category. The subsidy per passenger measure is an inverse relationship and is therefore calculated by dividing the category standard by the individual routes performance.

The following formula is used to develop the route performance index:

$$\text{Route Performance Index} = [(BSH/BSH) + (PMSM/PMSM) + (SUB/SUB)] + (LF/LF)/4$$

Explanation of Variables

BSH	Category average for boardings per service hour performance measure
PMSM	Category average for passenger miles per seat miles performance measure
SUB	Category average for subsidy per passenger performance measure
<u>LF</u>	<u>Category average for load factor conformance measure</u>



- BSH_i**: Individual boardings per service hour measure for route during evaluation period
- PMSM_i**: Individual passenger miles per seat miles measure for route during evaluation period
- SUB_i**: Individual subsidy per passenger measure for route during evaluation period The route performance index is calculated and reported annually. The performance measurement standards for each route category are to be set annually relative to the percentage improvement of overall system performance relative to the previous years performance. This percentage improvement will be based on the performance objectives outlined in the **FY 2006** Operating Budget.

LF_i Individual load factor conformance measure

The method for establishing the Route Performance Index standard for each category includes the following:

- Obtaining the budget performance measurement targets for FY 2006, and
- Increasing the average category performance measurement by the percentage increase established for that measure.

The mathematical explanation for this process is as follows:

$$BSH_y = F_H \left[\frac{1}{n} \sum (BSH_i) \right] \quad PMSM_y = F_C \left[\frac{1}{n} \sum (PMSM_i) \right] \quad SUB_y = F_S \left[\frac{1}{n} \sum (SUB_i) \right] \quad \mathbf{LF_y = F_L \left[\frac{1}{n} \sum (LF_i) \right]}$$

Explanation of Variables

- BSH_y**: Individual boardings per service hour performance measure for route for previous year
- PMSM_y**: Individual passenger miles per seat mile performance measure for route during previous year
- SUB_y**: Individual subsidy per passenger performance measure for route during previous year

LF_y Individual load factor conformance measure during previous year

- Σ**: Summation of all data items
- F_H**: Passenger boardings per service hour adjustment relative to annual budget performance measurement goal
- F_C**: Passenger miles per seat miles adjustment factor relative to annual budget performance measurement goals
- F_S**: Subsidy per passenger adjustment factor relative to annual budget performance measurement goals

F_L Individual load factor conformance measure relative to 120% loading standard.

The result of this calculation would be the standard for the category for the remainder of the fiscal year.



Index For Selected Bus Routes

To better illustrate how the index would vary according to the performance of an individual route, the performance index for three local bus routes was calculated using operating statistics from FY 2006. These bus routes include Route 207: Western Avenue which is one of the most heavily patronized bus lines in the system; Line 2: Sunset Boulevard which is a line that performs very close to the group average for local bus routes, and Route 58: Alameda St. which is a low ridership bus route.

The resulting performance indices are shown in the following table. Route 207: Western Avenue has an index of 1.5, more than two times the .60 minimum performance index. The performance index for Route 2: Sunset Boulevard is 0.97, about 50 percent above the minimum performance standard. Line 58: Alameda St. has a productivity index of 0.34, which is well below the minimum performance standard, and according to the transit policy, this service will require corrective action.

ROUTE PERFORMANCE INDEX FOR SELECTED LOCAL BUS ROUTES

Line Number	Name of Line	Service Type	Subsidy per Psgr.	Boardings per Revenue Hr.	Psgr. Miles Per Seat Miles	Load Factor Conformance rate	Performance Index
207	WESTERN AVE.	Local	\$0.66	88	0.5	97.6%	1.52
2	SUNSET BLVD. - BEVERLY DR.	Local	\$1.62	50	0.43	98.7	0.97
58	ALAMEDA ST.	Contract-Local	\$10.92	6	0.05	98.2	0.34



ATTACHMENT 2:

Methodology and Process for Passenger Impact Analysis



SECTION 5: SERVICE CHANGE PROCESS

The Metro traditionally implements service changes to its bus service system twice a year. Each service change takes about one year to plan and implement.

Service Change Timeline

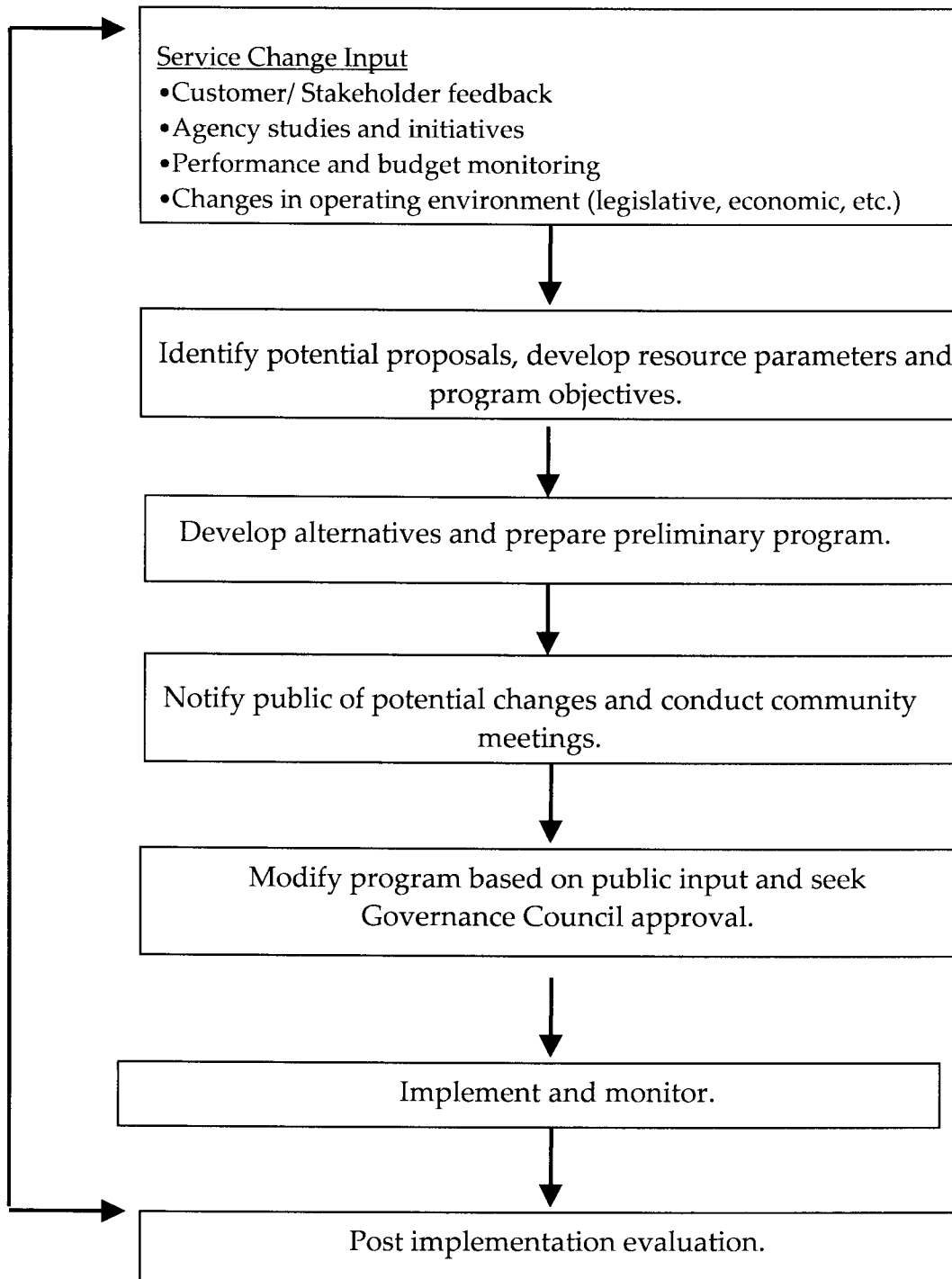
Key Activities	Required Lead Time (Months Prior to Implementation)
Initiate Planning Process	12
Develop Preliminary Recommendations	7-8
Public Review and Input	5-7
Impact Analysis for Proposed Changes	5-7
Finalize Program	5
Program Approval	5
Develop New Service Schedules	3-5
Print Public Time Tables and Operator Assignments	1-2
Implement Service Change	

The service change programs are developed based on input generated by a wide variety of sources. Sources include customer and employee input, service restructuring studies, requests from other local operators and performance monitoring results. The evaluation process includes public review of the proposals, **a technical evaluation of ridership and resource impacts**, environmental considerations, coordination with key stakeholders in the regional bus system, and review and approval by the Sector Governance Councils and/or Board of Directors. Once a program is approved, the public is notified of the upcoming changes and new public timetables and bus operator work assignments are developed. Appendix D presents the template that is used when presenting service change programs. It includes budget targets, goals and objectives, as well as a summary of key impacts.

Changes to the rail system occur less frequently. They generally relate to the opening of a new line or adjustments to the frequency or hours of operation for existing service. Changes in rail and bus service follow the same planning and implementation process.



SERVICE CHANGE PROCESS



5.1 INTERNAL REVIEW AND OVERSIGHT OF THE SERVICE CHANGE PROCESS

The Sector Governance Councils oversee the planning and implementation of service within their area, while coordination of the overall Service Change Program is an agency function. The responsibilities of the Governance Councils include: approval of the sector budget within designated funding levels; calling and conducting public hearings for sector bus lines; approval and evaluation of sector programs; implementation of service changes; review and development of policy recommendations to the Metro Board and ensuring compliance with Metro policies procedures and legal agreements.

The Metro has an internal review team, known as the Service Development Team, which provides oversight during the service change process. The committee includes the Chief Executive Officer (CEO), the Deputy Chief Executive Officer (Deputy CEO), the Sector General Managers, the General Manager of Rail Operations and other key executive staff. The committee establishes targets and objectives for each service change program; helps to prioritize proposals; and provides a forum for coordination among the sectors, especially when there are proposals involving major bus lines serving two or more sectors. When there are service issues that cannot be resolved among the sectors, the Service Development Team will intervene. The Service Development Team also oversees the development of fare and service policies and other agency initiatives that will have a major impact on transit services.

5.2 IMPACT ANALYSIS FOR PROPOSED CHANGES

Prior to approval, proposed service changes undergo a technical evaluation. The purpose of the evaluation is threefold: 1) to define and evaluate the impact on riders; 2) to develop appropriate mitigation measures, and 3) to demonstrate that service change programs result in a net benefit to the transit customer. Factors considered in the evaluation include: passenger wait time, transfer requirements, changes in walk distance, fare impacts, headway changes, safety considerations and special mitigation strategies. As part of this evaluation process, resource impacts including in-service hours and vehicles are also tracked to ensure compliance with budget parameters. Both ridership and resource impacts are reviewed as part of the program approval process.

The impact analysis is conducted by each of the Service Sectors. A series of standardized worksheets are used to determine ridership impacts (Appendix E). The worksheets are designed to translate the impacts into increases or decreases in annual person minutes of travel. Increased travel time is considered to be a negative impact and reduced travel time represents a rider benefit.



Appendix E: SERVICE CHANGE EVALUATION WORK SHEET



SERVICE CHANGE EVALUATION WORKSHEET

ROUTE:

IMPLEMENTATION DATE:

ANALYST:
SECTOR:

TYPE OF CHANGE	IMPACTS TO BE EVALUATED	DATA SOURCES:
HEADWAY	Traveltime, Wait Time	Ridership: Schedule:

DESCRIPTION OF CHANGE:
 (Attach route maps and specify days, time periods and route segments impacted, as applicable)
 (Note alternate service(s), if applicable)

DETERMINATION OF IMPACTS:
 (# of Boardings on Trips within 20-min(peak) or 60-min(off-peak) window) x (.5 x Change in Avg Headway in window)
 Impacts should be expressed as a positive value if a trip is added; a negative value if a trip is removed
 If Headway change results from adding/removing a short turn, then use ridership on affected line segment

	DX X 255	
	SA X 52	
	SU X 58	

Annualized Change in Passenger Minutes





SERVICE CHANGE EVALUATION WORKSHEET

ROUTE:

IMPLEMENTATION DATE:

ANALYST:

SECTOR:

TYPE OF CHANGE	IMPACTS TO BE EVALUATED	DATA SOURCES:
REROUTE	Traveltime, Access Time	Ridership: Schedule:

DESCRIPTION OF CHANGE:

(Attach route maps and specify days, time periods and route segments impacted, as applicable)
(Note alternate service(s), if applicable)

DETERMINATION OF IMPACTS:

(# of Passengers on affected line segment during time periods impacted) x (Change in Avg Trip Length in min.)
+ (1/2 of # of Boardings on affected line segment during time periods impacted) x (Change in Access Time)
Change in Access Time based on 5 min. for 1/4 mile and prorated to actual distance to deviated route segment

If route deviation is greater than 1/4 mile from original routing, then substitute one of the following for the second part of above calculation:

- If alternative service is available within 1/4 mile of original routing, then use
 - + (1/2 of # of Boardings on affected line segment during time periods impacted) x (Change in Access Time to alternate route)
 - + (# of Boardings on affected line segment during time periods impacted) x (Change in Wait Time, if any)
 - Change in Wait Time calculated as 1/2 of (prior headway less alternate headway)
- If no alternative service available within 1/4 mile of original routing, then use
 - + (# of Boardings on affected line segment during time periods impacted) x (Avg Trip Length + 1/2 Headway + 2.5 min.)

DX
X 255

SA
X 52

SU
X 58

Annualized Change in
Passenger Minutes





SERVICE CHANGE EVALUATION WORKSHEET

ROUTE:

IMPLEMENTATION DATE:

ANALYST:

SECTOR:

TYPE OF CHANGE	IMPACTS TO BE EVALUATED	DATA SOURCES:
ROUTE or SEGMENT	Travelttime,Wait Time,Access Time	Ridership: Schedule:

DESCRIPTION OF CHANGE:

(Attach route maps and specify days, time periods and route segments impacted, as applicable)
(Note alternate service(s), if applicable)

DETERMINATION OF IMPACTS:

Add Route or Segment:

(Projected Riders) x (Avg Trip Length in min.)

Remove Route or Segment:

No alternate service within 1/4 mile:

(Boardings on route or segment) x (Avg Trip Length in min.)

Alternate service within 1/4 mile:

(Boardings on route or segment) x (Change in Wait Time + Change in Access Time)

Change in Wait Time is 1/2 of difference in headways

Change in Access Time is 1/2 of distance between routes prorated based on 5 min. for 1/4 mile

DX
X 255

SA
X 52

SU
X 58

Annualized Change in
Passenger Minutes





SERVICE CHANGE EVALUATION WORKSHEET

ROUTE:

IMPLEMENTATION DATE:

ANALYST:
SECTOR:

TYPE OF CHANGE	IMPACTS TO BE EVALUATED	DATA SOURCES:
SERVICE TYPE	Traveltime, Wait Time	Ridership: Schedule:

DESCRIPTION OF CHANGE:
 (Attach route maps and specify days, time periods and route segments impacted, as applicable)
 (Note alternate service(s), if applicable)

DETERMINATION OF IMPACTS:

Adding a Service Type:
 (1/2 of Original Type riders) x (Change in Original Type Wait Time) [negative value]
 + (1/2 of Original Type riders) x (Change in Avg Trip Length in min. less Change in Wait Time for New Type [positive value]

Removing a Service Type:
 (Removed Type riders) x (Change in Wait Time less Change in Avg Trip Length in min.)
 where Change in Wait Time is positive value and Change in Avg Trip Length is negative value

DX
X 255

SA
X 52

SU
X 58

Annualized Change in
Passenger Minutes





SERVICE CHANGE EVALUATION WORKSHEET

ROUTE:

IMPLEMENTATION DATE:

ANALYST:

SECTOR:

TYPE OF CHANGE	IMPACTS TO BE EVALUATED	DATA SOURCES:
SPAN OF SERVICE	Traveltime	Ridership: Schedule:

DESCRIPTION OF CHANGE:
 (Attach route maps and specify days, time periods and route segments impacted, as applicable)
 (Note alternate service(s), if applicable)

DETERMINATION OF IMPACTS:

(# of Boardings per Trip) x (# of Trips Added/Removed) x (Avg Trip Length in minutes)
 For existing service (being removed), use current ridership [Express as negative value]
 If alternate service available within 1/4 mile, then use Access Time and Wait Time instead of Avg Trip Length for affected passengers
 Assume Wait Time is 1/2 Headway (in min) of destination service
 Assume Access Time is 5 min. for 1/4 mile and pro-rate accordingly
 For proposed service (being added), use projected ridership - or - assume .75 x avg boardings per trip for adjacent time period(s)

	DX X 255	
	SA X 52	
	SU X 58	

Annualized Change in
Passenger Minutes





SERVICE CHANGE EVALUATION WORKSHEET

ROUTE:

IMPLEMENTATION DATE:

ANALYST:
SECTOR:

TYPE OF CHANGE	IMPACTS TO BE EVALUATED	DATA SOURCES:
TRANSFER	Wait Time, Access Time	Ridership: Schedule:

DESCRIPTION OF CHANGE:

(Attach route maps and specify days, time periods and route segments impacted, as applicable)
(Note alternate service(s), if applicable)

DETERMINATION OF IMPACTS:

Occurs when a line is split or combined; also may occur when a duplicated segment is removed
 (# of Passengers on affected line segment during time periods impacted) x ((Access Time) + (Wait Time))
 When lines are combined, Access Time and Wait Time are removed and impact will have a positive value
 When line is split, or duplicate segment is removed, impact will have a negative value
 If point of line break is a shared stop, use 2 min. for Access Time, otherwise
 use prorated share of 5 min. for up to 1/4 mile (with a 2 min. minimum)
 If transfers are timed, use 0 min. for Wait Time, otherwise use 1/2 of Headway of destination line

DX
X 255

SA
X 52

SU
X 58

Annualized Change in
Passenger Minutes





SERVICE CHANGE EVALUATION WORKSHEET

ROUTE:

IMPLEMENTATION DATE:

ANALYST:
SECTOR:

TYPE OF CHANGE	IMPACTS TO BE EVALUATED	DATA SOURCES:
TRAVELTIME	Travelttime	Ridership: Schedule:

DESCRIPTION OF CHANGE:
 (Attach route maps and specify days, time periods and route segments impacted, as applicable)
 (Note alternate service(s), if applicable)

DETERMINATION OF IMPACTS:
 (# of Passengers on affected line segment during time periods impacted) x (Change in Avg Trip Length in minutes)
 Impacts should be expressed as a positive value if running time is reduced; a negative value if running time is increased

	DX X 255	
	SA X 52	
	SU X 58	

Annualized Change in Passenger Minutes

