

# Appendix N



Metro

EARN A CHANCE TO WIN A MONTHLY METRO PASS

Just complete this Metro customer satisfaction survey\*

Español al lado opuesto

- 1. Generally speaking, I am satisfied with Metro Bus service
2. THIS bus is generally on time (within 5 minutes)
3. I feel safe while waiting for THIS bus
4. THIS bus's drivers are generally courteous
5. THIS bus is generally clean
6. THIS bus's stops are generally clean
7. I have seen Metro advertisements in the last month
8. Metro provides me with timely and useful information for my travel
9. I am proud to travel with Metro

- 10. Has THIS bus passed you by at a stop in the last month?
11. Has THIS bus broken down in the last month?
12. Do you have a cell phone with you on THIS bus?
a. If yes, is it a smart phone? (Can you browse the Internet?)

Now, thinking about TODAY'S one-way trip (e.g., home to work, home to school, work to home, etc.):

- 13. How did you get to the first bus or train of this trip?
14. How many minutes did it take you to get to the first bus or train of this one-way trip?
a. How many minutes did you wait for that first bus or train?

- 15. Do you have a car available to make THIS trip?
16. Do you have to transfer to complete THIS one-way trip?
a. If yes, do connecting buses/trains come within 15 minutes?
17. Are you making THIS one-way trip to/from work?
18. What are your household's total annual earnings?
a. How many people are in your household (including yourself)?

- 19. Did you use a TAP card for the FIRST Metro bus/train of THIS trip?
a. If yes, is TAP easy to use for paying your fare?

- 20. What type of fare did you use on the FIRST Metro bus/train of this one-way trip? (CHECK ONLY ONE)
1 Day Pass, 2 Token, 3 One-ride / Cash, 4 Reg. Monthly Pass, 5 Reg. Weekly Pass, 6 EZ transit pass, 7 Senior/Disabled Pass, 8 College Student Pass, 9 K-12 Student Pass, 10 Trans. From Muni., 11 Trans. From Metrolink

- 21. How do you get Metro information? (check all that apply)
1 Brochures, 2 Posters on buses and trains, 3 Metro.net, 4 Radio ads, 5 Internet ads, 6 Newspaper ads, 7 Billboards, 8 323-GO Metro, 9 Metro mobile app, 10 Google Maps, 11 511, 12 Other

- 22. How many days a week do you usually ride Metro?
1 5 or more days, 2 3-4 days, 3 1-2 days, 4 <1day, 5 First time

- 23. How many years have you been riding Metro?
1 Less than one, 2 1-2 Years, 3 3-4 Years, 4 5+ Years

- 24. Are you?
1 Latino, 2 Black, 3 White, 4 Asian/Pac. Is., 5 Amer. Ind., 6 Other

- 25. Are you?
1 Male, 2 Female

- 26. What is your age?
1 Younger than 18, 2 18-22, 3 23-49, 4 50-64, 5 65 or older

All information will be kept confidential.

First Name & Phone (optional\*)
E-mail (optional\*)

(\*needed to contact the winners) 5/13



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a. How many minutes did you wait for that first bus or train?

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16. Do you have to transfer to complete THIS one-way trip?
a. If yes, do connecting buses/trains come within 15 minutes?
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18. What are your household's total annual earnings?
a. How many people are in your household (including yourself)?

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- 23. How many years have you been riding Metro?
1 Less than one, 2 1-2 Years, 3 3-4 Years, 4 5+ Years

- 24. Are you?
1 Latino, 2 Black, 3 White, 4 Asian/Pac. Is., 5 Amer. Ind., 6 Other

- 25. Are you?
1 Male, 2 Female

- 26. What is your age?
1 Younger than 18, 2 18-22, 3 23-49, 4 50-64, 5 65 or older

All information will be kept confidential.

First Name & Phone (optional\*)
E-mail (optional\*)

(\*needed to contact the winners) 5/13



# OBTENGA UNA OPORTUNIDAD DE GANAR UN PASE MENSUAL DE METRO

Solo llene esta encuesta sobre satisfacción del cliente\*  
English on reverse

- |  | Muy de acuerdo             | De acuerdo                 | Desacuerdo en parte        | No de acuerdo              |
|--|----------------------------|----------------------------|----------------------------|----------------------------|
| 1. Generalmente, estoy satisfecho con el servicio de autobús de Metro    | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 |
| 2. <b>ESTE</b> autobús generalmente llega a tiempo (dentro de 5 minutos) | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 |
| 3. Me siento seguro mientras espero <b>ESTE</b> autobús                  | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 |
| 4. Conductores de <b>ESTE</b> autobús generalmente son amables           | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 |
| 5. <b>ESTE</b> autobús generalmente está limpio                          | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 |
| 6. Las paradas de <b>ESTE</b> autobús generalmente están limpias         | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 |
| 7. He visto anuncios de Metro en el mes pasado                           | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 |
| 8. Metro me proporciona información oportuno y útil para los viajes      | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 |
| 9. Estoy orgulloso de viajar con Metro                                   | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 | <input type="checkbox"/> 4 |

- |  | Sí                         | No                         |
|--|----------------------------|----------------------------|
| 10. ¿ <b>ESTE</b> autobús ha faltado de recogerlo en la parada en el mes pasado? | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 |
| 11. ¿ <b>ESTE</b> autobús se ha descompuesto en el mes pasado?                   | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 |
| 12. ¿Tiene un teléfono celular con usted?  | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 |
| a. Si sí, ¿es un smart phone (puede utilizar Internet)?                          | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 |

**Ahora, pensando sobre su viaje de ida solamente de HOY (e.g., hogar a trabajo, hogar a escuela, trabajo a hogar, etc.):**

13. ¿Cómo llego a su primer autobús o tren de este viaje?  
1 Caminé 3 Manejó 5 Otro \_\_\_\_\_  
2 Dejado en parada 4 En bicicleta
14. ¿Cuántos minutos le tomó para llegar a su primer autobús o tren para este viaje de ida solamente? \_\_\_\_\_  
a. ¿Cuántos minutos esperó para ese primer autobús o tren? \_\_\_\_\_
- |   | Sí                         | No                         |
|---|----------------------------|----------------------------|
| 15. ¿Tenía un carro disponible para hacer <b>ESTE</b> viaje?                          | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 |
| 16. ¿Tiene que hacer un transbordo para completar <b>ESTE</b> viaje de ida solamente? | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 |
| a. Si sí, ¿los autobuses/trenes llegan dentro de 15 minutos?                          | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 |
| 17. ¿Hace este viaje al/desde trabajo?  | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 |

18. ¿Cuál es el ingreso anual en total de su hogar?
- |  |  |  |
|--|--|--|
| <input type="checkbox"/> 1 Menos de \$5,000  | <input type="checkbox"/> 2 \$5,000-\$9,999   | <input type="checkbox"/> 3 \$10,000-\$14,999 |
| <input type="checkbox"/> 4 \$15,000-\$19,999 | <input type="checkbox"/> 5 \$20,000-\$24,999 | <input type="checkbox"/> 6 \$25,000-\$34,999 |
| <input type="checkbox"/> 7 \$35,000-\$49,999 | <input type="checkbox"/> 8 \$50,000-\$99,999 | <input type="checkbox"/> 9 \$100,000 o mas   |

- a. Cuantas personas tiene su hogar (incluya a sí mismo)?  
1 1 2 2 3 3 4 4 5 5 6 6 7 7 8 8 9 9 or more
19. ¿Utilizó una tarjeta TAP para **ESTE** viaje? 1 2  
a. Si sí, ¿es TAP fácil de usar para pagar su pasaje? 1 2

20. ¿Qué tipo de pasaje utilizó para abordar su **PRIMER** autobús/tren de **Metro** en este viaje de una sola ida? (**MARQUE SÓLO UNO**)
- |   |  |   |   |
|---|--|---|---|
| <input type="checkbox"/> 1 Day Pass             | <input type="checkbox"/> 2 Ficha               | <input type="checkbox"/> 3 Un solo viaje / Efectivo                 | <input type="checkbox"/> 4 Pase mensual regular     |
| <input type="checkbox"/> 5 Pase semanal reg.    | <input type="checkbox"/> 6 Pase de transito EZ | <input type="checkbox"/> 7 Pase para personas mayores/discapacitado | <input type="checkbox"/> 8 Pase estudiante colegial |
| <input type="checkbox"/> 9 Pase estudiante K-12 | <input type="checkbox"/> 10 Transb. de Muni.   | <input type="checkbox"/> 11 Transb. de Metrolink                    |   |

21. Como recibe información de Metro? (marque todo que se aplica)
- |  |   |   |
|--|---|---|
| <input type="checkbox"/> 1 Folletos          | <input type="checkbox"/> 2 Carteles en los autobuses y trenes | <input type="checkbox"/> 3 Metro.net              |
| <input type="checkbox"/> 4 Anuncios de radio | <input type="checkbox"/> 5 Anuncios del Internet              | <input type="checkbox"/> 6 Anuncios de periódico  |
| <input type="checkbox"/> 7 Carteles          | <input type="checkbox"/> 8 323-GO Metro                       | <input type="checkbox"/> 9 Metro aplicación móvil |
| <input type="checkbox"/> 10 Google Maps      | <input type="checkbox"/> 11 511                               | <input type="checkbox"/> 12 Other _____           |

22. ¿Cuántos días por la semana generalmente utiliza Metro?  
1 5 o más días 2 3-4 días 3 1-2 días 4 <1 día 5 Primer vez

23. ¿Cuántos años ha estado utilizando Metro?  
1 Menos de uno 2 1-2 Años 3 3-4 Años 4 5+ Años

24. ¿Es usted? 1 Latino 2 Afro-Americano 3 Anglosajón  
4 Asiático/Is. Pac. 5 Amer. Nativo 6 Otro

25. ¿Es usted? 1 Hombre 2 Mujer

26. ¿Cuántos años tiene? 1 Menos de 18 2 18-24 3 23-49  
4 50-64 5 65 o más

**Toda la información será confidencial.**

Primer Nombre y Teléfono (Opcional\*) \_\_\_\_\_

Correo Electrónico (Opcional\*) \_\_\_\_\_

(\*requisito para notificar ganadores) 5/13



# OBTENGA UNA OPORTUNIDAD DE GANAR UN PASE MENSUAL DE METRO

Solo llene esta encuesta sobre satisfacción del cliente\*  
English on reverse

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- |  | Sí                         | No                         |
|--|----------------------------|----------------------------|
| 10. ¿ <b>ESTE</b> autobús ha faltado de recogerlo en la parada en el mes pasado? | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 |
| 11. ¿ <b>ESTE</b> autobús se ha descompuesto en el mes pasado?                   | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 |
| 12. ¿Tiene un teléfono celular con usted?  | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 |
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- |   | Sí                         | No                         |
|---|----------------------------|----------------------------|
| 15. ¿Tenía un carro disponible para hacer <b>ESTE</b> viaje?                          | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 |
| 16. ¿Tiene que hacer un transbordo para completar <b>ESTE</b> viaje de ida solamente? | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 |
| b. Si sí, ¿los autobuses/trenes llegan dentro de 15 minutos?                          | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 |
| 17. ¿Hace este viaje al/desde trabajo?  | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 |

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- |  |  |  |
|--|--|--|
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| <input type="checkbox"/> 4 \$15,000-\$19,999 | <input type="checkbox"/> 5 \$20,000-\$24,999 | <input type="checkbox"/> 6 \$25,000-\$34,999 |
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Correo Electrónico (Opcional\*) \_\_\_\_\_

(\*requisito para notificar ganadores) 5/13

Metro 고객 설문조사 온라인 주소:

Пожалуйста, примите участие в онлайн-опросе пользователей Metro по ссылке:

Sagutan ang aming Metro Customer Survey sa:

ท่านสามารถทำแบบสอบถามออนไลน์ได้ที่:

Tiến hành Khảo Sát Khách Hàng Metro trực tuyến tại:



**Metro**

**MetroSurvey2013Rail.com**

Survey #

ឲ្យសង្ឃឹមល្អ ឬបញ្ចប់ ការស្រាវជ្រាវរបស់យើង អ្នកអាចប្រើប្រាស់  
អ៊ីនធឺណិត ដើម្បីឆ្លើយប្រើប្រាស់:

请您在线填写我们的客户调查:

弊社のオンラインMetro顧客調査に下記からご回答下さい:

ជូនការស្រាវជ្រាវរបស់យើង អ្នកអាចប្រើប្រាស់  
អ៊ីនធឺណិត ដើម្បីឆ្លើយប្រើប្រាស់:



**Metro**

**MetroSurvey2013Rail.com**

Survey #

# Appendix O



**Metro**

Los Angeles County  
Metropolitan Transportation Authority

One Gateway Plaza  
Los Angeles, CA 90012-2952

213.922.2000 Tel  
metro.net

**SYSTEM SAFETY & OPERATIONS COMMITTEE  
SEPTEMBER 19, 2013**

**SUBJECT: TITLE VI SYSTEM MONITORING REPORT**

**ACTION: ADOPT REVISED STOP SPACING STANDARDS AND RECEIVE AND FILE TRIENNIAL SYSTEM MONITORING REPORT**

**RECOMMENDATION(S)**

1. Approve the recommended revised Stop Spacing Standards presented in Attachment A.
2. Receive and file the Triennial System Monitoring Report (Attachment B) required by Title VI

**ISSUE**

Federal Transit Administration (FTA) Circular 4702.1B, Title VI Requirements and Guidelines for Federal Transit Administration Recipients, effective October 1, 2012, requires the preparation of a System Monitoring Report at least once every three years. The report includes an assessment of how well bus and rail services meet the adopted Service Policies and Standards (last approved by the Board in March 2013). In instances where standards are not met the report also includes discussion of reasons, and incorporation of a plan of action for achieving targets. The Stop Spacing standard was found to unnecessarily limit accessibility to services. The follow-up action is a proposed revision that permits closer spacing.

**DISCUSSION**

The Board of Directors adopted revisions to five service standards (Passenger Loading, Headways, On-Time Performance, Stop Spacing and Accessibility) and two service policies (Passenger Amenities and Vehicle Assignment) in March 2013. Those standards and policies established thresholds for performance by mode for Metro Operations.

The principal focus of the System Monitoring Report is an evaluation of compliance with the adopted service policies and standards. This evaluation found compliance with five of the seven standards. Current service was found to be inconsistent with the On-Time Performance and Stop Spacing standards.

The On-Time Performance standard requires that 90% of lines achieve at least 90% of the current year's goal (presently 80%). Only 69% of lines met this standard, and minority lines were found to have significantly less compliance (67%) than non-minority lines (77%) resulting in a disparate impact (a 10% absolute difference between minority and non-minority compliance for system monitoring has been established as the threshold for a disparate impact). The report presents a limited history of past efforts to improve on-time performance, and notes that a Task Force has been established to more thoroughly identify reasons for not conforming with the standard and methods to improve performance.

The Stop Spacing standard requires that 90% of routes have average stop spacing (miles between stops) within one-tenth mile of specified distances which vary by service type (1.50 miles for Heavy & Light Rail, 1.25 miles for BRT & Express bus, 0.75 mile for Rapid bus, 0.50 mile for Limited Stop bus, and 0.25 mile for Local & Shuttle bus). The idea behind this standard was that there is a tradeoff between accessibility of services (necessitating more frequent stops) and travel time (necessitating fewer stops). The report found that this standard was met only 73% of the time primarily because many routes in the various service types had more stops than the standard would allow. There was a significant difference between minority (69%) and non-minority (85%) route compliance because many minority routes had more stops than the standard would accept. This is actually a beneficial circumstance because it means that minority routes are generally much more accessible (in terms of quantity and nearness of stops) than non-minority routes. While this finding may be viewed as positive it, nevertheless, does not meet the adopted Stop Spacing standard. In this instance, staff believes that the adopted standard is too narrow (that more stops are not necessarily negative, particularly in higher density congested areas) and should be revised. A proposed revised standard is presented in Attachment A which removes the minimum threshold on stop spacing, and requires only that 90% of routes not exceed the maximum distances specified by service type.

## **DETERMINATION OF SAFETY IMPACT**

The requested actions in this report will have no direct impact on the safety of Metro's employees or customers.

## **FINANCIAL IMPACT**

The actions requested in this report have no direct impact upon Metro's expenditures or revenues. Approval is consistent with the implementation of service included in the adopted FY2014 Budget. Continuing the existing Stop Spacing standards without revision could have adverse impacts on future year operating budgets.

## **Impact to Budget**

Approval of this report is consistent with the FY2014 adopted budget.

## **ALTERNATIVES CONSIDERED**

The alternative of not revising the Stop Spacing standards would be inconsistent with established practice, and could have significant adverse impacts on passenger access and convenience should the agency remove bus stops to comply with an inappropriate standard.

Board acceptance of a System Monitoring Report is a requirement of the Title VI Guidance. Failure to do so could lead to a finding of non-compliance with Title VI and loss of eligibility for federal funds.

## **NEXT STEPS**

The System Monitoring Report will be submitted to FTA by October 1, 2013, in order to comply with the triennial reporting deadline established for LACMTA by the FTA.

## **ATTACHMENTS**

- A. Proposed Revisions to Stop Spacing Standards
- B. Title VI System Monitoring Report
- C. On-Time Performance Task Force Work Program

Prepared by: Conan Cheung, DEO of Service Planning & Development  
Dan Levy, Director of Civil Rights Program Compliance  
Dana Woodbury, Manager of Strategic Service Planning

Questions: Michelle Stewart, Assistant Administrative Analyst  
(213) 922-7270



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Frank Alejandro  
Chief Operations Officer

---

Arthur T. Leahy  
Chief Executive Officer

**ATTACHMENT A  
PROPOSED REVISIONS TO STOP SPACING STANDARDS**

**Stop Spacing**

Proposed stop spacing standards are shown in Table A-1. This revision is recommended because the current standards unnecessarily limit the accessibility to services by providing both a lower and an upper limit to stop spacing. The Rapid standard has been increased from .75 to .80, and the Limited increased from .50 to .60. The standards indicate the maximum stop spacing in miles by type of service, and are not to be exceeded by at least 90% of all routes operated.

**Table A-1: Maximum Stop Spacing Standards (in miles)**

Heavy Rail	1.50
Light Rail	1.50
BRT	1.25
Rapid	0.80
Express	1.25
Limited	0.60
Local	0.25
Shuttle	0.25

**ATTACHMENT B  
TITLE VI SYSTEM MONITORING REPORT**

A System Monitoring Report is required by Title VI guidelines at least once every three years. Adopted service policies and standards are assessed for compliance as well as any inequities that may exist between minority and non-minority services. Metro has seven service policies and standards that are monitored for compliance comprising:

- Passenger Loading;
- Headways;
- On-Time Performance;
- Stop Spacing;
- Accessibility;
- Passenger Amenities; and
- Vehicle Assignment.

The last three of these standards are monitored at the system level. The first four are monitored at the route or line level, and require determination of whether a route or line is deemed minority or non-minority. Title VI guidelines stipulate that a route will be deemed minority if at least one-third of its length operates within census areas that are significantly minority (e.g. higher minority population share than the service area as a whole). While individual reclassifications are possible if additional data is available to support it, this report retains the classification for each route as determined by the FTA method.

The line classifications are as follows (Table 1) (routes are classified the same as their parent line) based upon December 2012 line definitions:

**Table 1: Line Classification for System Monitoring**

Service Type	Minority Lines (Routes)	Non-Minority Lines (Routes)
Local	10(48),14(37),16,18,28,30,33,35(38),40,45,51(52),53,55,60,62,66,70,71,76,78(79),81,83,84(68),94,102,105,108,110,111,115,117,120,125,126,127,128,130,152,163(162),166,176,177,190(194),200,202,204,205,206,207,209,210,211(215),212,224,230,232,233,234,246,251,252,254,256,258,260,265,266,267(264),268,270,290,292	2,4,20,90(91),92,96,150(240),154,155,156,158,161,164,165,167,169,175,180(181),183,201,217,218,220,222,236(237),239,243(242),245(244)
Shuttle	603,605,607,611,612,620,625,665	645,685,687(686)
Limited	(311,312,316,330,352,353,355,358,364,378)	(302),344
Express	442,450,460,485,487(489),550,577,910	534
Rapid	705,710,720,728,733,734,740,745,751,754,757,760,761,762,770,794	704,741,750,780
BRT		901
Rail	801,802(805),803,804,806	

## Passenger Loading

**Standard:** The standard establishes the maximum ratio of passengers to seats during any one hour period, and should not be exceeded at least 95% of the time. The peak (6-9am and 3-7pm weekdays) and off-peak (all other times) standards are the same, as follows: Heavy Rail – 2.30; Light Rail – 1.75; and Bus – 1.30.

**Monitoring Result:** The most recent quarterly data available for this report spans January-March of 2013 and documents the maximum observed load ratio (passengers divided by seats) for every hour operated for each line. Rail lines are not included in this report as the data presently collected for overall ridership estimation is not extensive enough to permit establishing maximum loads by hour by individual rail car.

Since weekday, Saturday and Sunday data is included in the monitoring program, the monitoring is summarized on a composite weekly basis (weekday data is multiplied by five and added to Saturday and Sunday data). The results are summarized in Table 2.

**Table 2: Compliance with Passenger Loading Standard  
Average Week – January-March 2013**

	# of Lines	# of Hourly Intervals	PEAK		OFF-PEAK		
			# of Non-Compliant Intervals	% Compliant	# of Non-Compliant Intervals	% Compliant	
Minority (1)	104	7,105	10	99.86%	18,493	54	99.71%
Non-Minority	38	2,660	0	100.00%	6,333	14	99.78%

(1) Does not include 5 rail lines also classified as Minority

Compliance is robust for all classifications of the data as this standard is consistently met.

## Headways

**Standard:** The Headway standard varies by type of service and time of day as shown in Table 3. The standard establishes the maximum gap (in minutes) between trips in the peak direction of travel at the maximum load point of a line. The standard should not be exceeded in at least 90% of all hourly periods.

**Table 3: Headway Standards (in minutes)**

Service Type	Peak	Off-Peak
Heavy Rail	10	20
Light Rail	12	20
BRT	12	30
Rapid	20	30
Express	60	60
Limited	30	60
Local	60	60
Shuttle	60	60

**Monitoring Result:** Trips were compiled by time of day and day of the week for each line in the peak direction of travel at the maximum load point. Service between 6:00am and midnight was tested to determine whether the requisite number of trips required by the Headway standard were operated in each time period. For example, if a 20-minute maximum headway were permitted in the AM Peak period (6-9am), then at least nine trips had to be scheduled to comply with the standard. Every time period in which service was operated was categorized as complying, or not complying, with the standard and the number of hours in that time period was assigned to the appropriate category. To account for variation by day type a composite week consisting of five weekdays plus a Saturday and a Sunday was compiled for each line. The results are summarized in Table 4.

**Table 4: Weekly Headway Compliance**

	# of Lines	PEAK			OFF-PEAK			COMBINED		
		# of Hourly Intervals	# of Non-Compliant Intervals	% Compliant	# of Hourly Intervals	# of Non-Compliant Intervals	% Compliant	# of Hourly Intervals	# of Non-Compliant Intervals	% Compliant
Minority	111	3,815	75	98.03%	9,014	921	89.78%	12,829	996	92.24%
Non-Minority	36	1,330	35	97.37%	2,924	407	86.08%	4,254	442	89.61%
								17,083	1,438	91.58%

Peak period compliance is better than 97% for both minority and non-minority lines. However, off-peak compliance is notably lower. This is not unexpected since the off-peak includes the start and end of service for many lines (those without owl service), and trips may not be operated throughout these time periods. Overall compliance meets the standard, and there is no significant disparity between minority and non-minority lines though minority lines have slightly better overall compliance.

## On-Time Performance

**Standard:** Service is considered on-time if the departure from a designated time point is no more than one minute early and no more than five minutes late. Performance is measured at all established time points excluding line terminals. The standard requires that at least 90% of lines achieve at least 90% of the current year's objective. For FY2013, the objective is 80% on-time for bus operations. The established rail standard is 95% on-time, but monitoring data is not yet available as an interface to the SCADA computer system that governs rail operations needs to be developed.

**Monitoring Result:** On-time performance was measured for a composite week consisting of five weekdays plus a Saturday and a Sunday. The results are provided in Table 5.

**Table 5: Weekly On-Time Performance**

	Weighted # of Lines	# of Non- Compliant Lines	% Compliant
Minority (1)	677	226	66.62%
Non-Minority	247	57	76.92%
	924	283	69.37%

(1) excludes five Minority rail lines

Overall compliance is significantly below the 90% required, and is significantly poorer for minority lines than non-minority lines creating a disparate impact as the difference is greater than 10%.

While the overall objective is 80% on-time the bus system falls short of that level of performance at all times: 74.8% average on-time on weekdays; 70.8% on Saturdays; and 75.8% on Sundays. Performance tends to decline as the day goes on (Table 6).

**Table 6: Weekday On-Time Performance**

<b>Time of Day</b>	<b>System On-Time Performance</b>
Early AM (4-6am)	88.9%
AM Peak (6-9am)	80.5%
Midday (9am-3pm)	75.6%
PM Peak (3-7pm)	68.6%
Early Evening (7-9pm)	71.0%
Late Evening (9-Mid)	73.9%
Owl (Mid-4am)	74.2%

Also notable, the rate of early departures has begun to increase after efforts had been made to address this. Early departures are presently 6.6% of trips for the January-March quarter which is unacceptable.

Since 2009 the agency has undertaken extraordinary efforts to improve on-time performance with some success (Table 7).

**Table 7: Historical On-Time Performance**

Apr-09	69%
Apr-10	74%
Apr-11	76%
Apr-12	78%
Apr-13	76%

An on-time performance task force was established in 2009 to identify issues affecting service reliability and to implement solutions. Some of the early solutions included ensuring buses left divisions and terminals on time, as well as disciplining operators for running “hot” or ahead of schedule. A new on-time performance task force was created in July 2013 and recommendations for implementation are presented in Attachment C.

In addition, a Task force has been established to look specifically at Line 720. Schedule adjustments will be implemented in September, which include four standby buses to be managed by supervisors as well as a monitoring program to manage bus bunching.

### **Stop Spacing**

**Standard:** The Stop Spacing standard establishes a range of distances within which the average distance between stops must fall for at least 90% of all routes. The range for each service type is within one-tenth mile of the values shown in Table 8.

**Table 8: Stop Spacing Standards (in miles)**

Service Type	Stop Spacing
Heavy Rail	1.50
Light Rail	1.50
BRT	1.25
Rapid	0.75
Express	1.25
Limited	0.50
Local	0.25
Shuttle	0.25

**Monitoring Result:** Average stop spacing was determined for every route by dividing the bidirectional total number of stops (or stations) by the bidirectional route length. The results are summarized in Table 9.

**Table 9: Stop Spacing Standard Compliance**

	MINORITY			NON-MINORITY		
	# of Routes	# Conforming	% Conforming	# of Routes	# Conforming	% Conforming
Local	83	71	85.54%	34	34	100.00%
Shuttle	9	8	88.89%	4	2	50.00%
Limited	10	3	30.00%	2	1	50.00%
Express	9	1	11.11%	1	0	0.00%
Rapid	16	8	50.00%	4	2	50.00%
BRT	0	0		1	0	0.00%
Rail	6	1	16.67%			
Combined	133	92	69.17%	46	39	84.78%
			OVERALL	179	131	73.18%

Overall compliance is significantly below the required 90% with a significant difference between minority and non-minority routes. Poor compliance is primarily attributable to non-local service types. Further analysis disclosed that the predominant reason for non-compliance was too many stops (average stop spacing falling below the minimum standard). While this is beneficial from a customer perspective because it provides greater access, it is noncompliant with the standard as adopted. Under the circumstances this finding suggests that the adopted standard is too restrictive, and a less restrictive standard has been proposed in Attachment A. It is noted that if the proposed revised standard were to be in effect then minority compliance would be at 94.74%, non-minority compliance would be at 95.65%, and overall compliance would be at 94.97%.



## Accessibility

**Standard:** This standard states that service is to be provided within one-quarter mile of 99% of census tracts having at least three households per acre and/or at least four jobs per acre within Metro’s service area. Fixed route service provided by other operators may be used to meet this standard.

**Monitoring Results:** Only one census tract (#4087.23) meeting the stated criteria is not within one-quarter mile of a fixed route transit stop. This tract is in the southeastern portion of Los Angeles county in an unincorporated area known as Rowland Heights. It is the only non-compliant tract of 1,891 that meet the stated criteria for a compliance of 99.95%.

## Passenger Amenities Policy

**Policy Statement:** This policy provides a minimum standard for the provision of passenger amenities at all Metro owned off-street facilities that serve passengers as shown in Table 10.

**Table 10: Passenger Amenities Policy**

Shelters:	HR – not applicable LR – at least 80 linear ft. Bus – at least 6 linear ft. per bay
Seating:	HR – at least 12 seats LR – at least 10 seats Bus – at least 3 seats per bay
Info Displays:	HR – at least 12 LR – at least 10 Bus – at least 3
LED Displays:	HR – at least 8 arrival/departure screens LR – not applicable Bus – not applicable
TVMs:	HR/LR = at least 2 Bus – not applicable
Elevators:	HR – at least 2 LR – at least 1 for elevated/underground Bus – at least 1 for multi-level terminals
Escalators:	HR – at least 4 (2 Up / 2 Down) LR – not applicable Bus – not applicable
Waste Receptacles:	HR – at least 6 LR – at least 2 Bus – at least 1 per 3 bays / 2 minimum

**Monitoring Result:** Based upon surveys conducted in 2011 and 2013 all facilities covered by this policy meet the minimum standards provided.

**Vehicle Assignment Policy**

**Policy Statement:** This policy provides the basis for how vehicles will be assigned to operating facilities as stated in Table 11.

**Table 11: Vehicle Assignment Policy**

Heavy Rail:	Not applicable – only one line and one vehicle type
Light Rail:	Vehicles will be assigned to individual lines on the basis of compatibility of vehicle controllers with each line’s signal system. The number of vehicle types/manufacturers will be kept to no more than two at any facility to minimize parts storage and maximize maintenance expertise.
Bus:	Vehicles will be assigned to individual facilities on the basis of vehicle size requirements for lines supported by each facility.

**Monitoring Result:** There is only one Heavy Rail facility and associated operating yard, the policy is not applicable to this mode.

Light Rail vehicle assignments are shown in Table 12.

**Table 12: Light Rail Vehicle Assignments**

Vehicle Type	Div 11	Div 21	Div 22
AnsaldoBreda2550Base		50	
Nippon Sharyo 2020	15		
Nippon Sharyo 865	54		
Siemens 2000 Base			29
Siemens 2000 GE/ATP	23		

The two Nippon Sharyo vehicle types shown assigned to Division 11 are essentially the same vehicle, but acquired through two separate procurements. Therefore, the light rail policy is being followed.

Bus assignments are documented in the Equipment Assignment Report (Report 4-12) most recently issued for the June 2013 service change. The report is too voluminous to include here, but it follows the bus vehicle assignment policy in assigning buses to operating facilities.

## ATTACHMENT C

### ON-TIME PERFORMANCE TASK FORCE WORK PROGRAM

## Operationalizing Metro Goal 1 – Improve Transit Services

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The goal for this effort is to meet or exceed the 80% target by the end of the fiscal year systemwide. In the latest Service Performance Analysis report, ISOTP through the end of June pegged the 2014 systemwide YTD achievement at 77% and 2013 YTD AT 75.8%. This table displays YTD 2014 and 2013 achievements:

DIVISION	2014 YTD	2013 YTD
1	78.6%	79.6%
2	78.4%	74.1%
3	75.4%	76.1%
5	72.6%	75.9%
6	74.9%	75.3%
7	74.4%	71.9%
8	86.4%	79.8%
9	76.5%	76.1%
10	71.9%	71.8%
15	80.3%	77.5%
18	74.2%	75.8%
SYSTEM	77.0%	75.8%

The KPI target for ISOTP for every bus division is 80%; Metro is 3-4 points away from making the target. A meeting was held on July 22, 2013 to discuss the various options and to explore ways to obtain that last increment of 3-4%.

This working group has been tasked to seek best practice methods and improvements in reporting, counseling, and enforcement to drive us forward. This working group consists of members from Operations management, Scheduling / Operations Planning, Information Technology Services (ITS), Bus Operations Control (BOC), Vehicle Operations (VO), Bus Maintenance, Division Transportation, and others so that all facets of the problem can be addressed.

#### Four basic milestones:

1. Improved Data and Analysis
  - a. SCHEDULES WILL PREPARE ADDITIONAL REPORTS FROM BOE. BAHRAM CHAUDRY WILL LOOK TO CREATING CANNED REPORTS IN CCATS THAT TARGET EARLY AND LATE COMPLAINTS AND OPERATORS WITH REPEATED COMPLAINTS. ANY IDEAS FOR SPECIALIZED REPORTS THAT WOULD SUPPORT THE GOAL ARE WELCOMED.
2. Improved On-street performance
3. Improved educational materials
  - a. WORK WITH MARKETING AND COMMUNICATIONS TO BRING FORWARD A CAMPAIGN.

4. Improved communication and enforcement with Operators
  - a. WILL WORK WITH VO TO USE DATA TO TARGET WORST PERFORMERS

Here are some specific tasks for investigation:

1. **Identify reports from Business Objects Enterprise (BOE) that can be run centrally** so that Division management can open the report to drill down to operators, lines, and line segments. One report should be devoted to early trips and a second to late trips. Reports providing information on the top 20 operators leaving terminals late or early for example would provide manageable pieces of the puzzle. Our task should be to make it simpler to chip away at the problem.

**ACTION:** A NEW REPORT WILL BE DEVELOPED THAT WILL RANK THE POOREST PERFORMING LINES AND IDENTIFY LATE/EARLY OPERATORS IN THE FOLLOWING SEQUENCE – LINE-DAY TOP 50 LATE / EARLY OPERATORS –DIRECTION OF TRAVEL. EACH ROUTE CAN BE RESEARCHED BY DAY TYPE (DAILY, SATURDAY, SUNDAY), TIME OF DAY (EARLY AM, AM PEAK, ETC.), AND DIRECTION.

2. **Improve the timeliness of the data.** There is a minimum lag of two weeks before the data can be summarized and presented. The information becomes stale quickly and timeliness is critical. Therefore, organizing staff to increase the speed of preparation of the data set is essential to increase that speed.

**ACTION:** DATA VALIDATION TASKS WILL BE REVIEWED.

3. **Develop methods of using the data to pinpoint areas for schedule adjustment.** Staff are working to devise methods to identify areas of late or early operations. Right now this is a task left to the individual Divisions and the Scheduling staff. Developing reports that help us better target Operators and service issues needs to be a top priority. This will help the VO team members close in on areas of low ISOTP and make a determination if the issue is operator driven or environment driven.

4. **ACTION:** A SECOND REPORT WILL BE GENERATED FROM BOE THAT WILL PINPOINT THE LOWEST PERFORMING LINE SEGMENTS. THE IDENTIFICATION WILL FOLLOW THE SEQUENCE – LINE – SEGMENT – DAY TYPE (WEEKDAY, SATURDAY, SUNDAY) – TIME OF DAY (5 STANDARD PERIODS) – DIRECTION OF TRAVEL.

5. **Involve one or two Operators** in the Task Force to get frontline perspectives.

**ACTION:** A DIVISION 8 OPERATOR WILL JOIN THE TASK FORCE.

6. **Identify target lines for BOC to assist in management of schedules.** This has been done in the past where each division identifies 1-2 lines to be managed by BOC.

**ACTION:** THE DIVISION MANAGEMENT REPRESENTATIVE WAS TASKED WITH CONTACTING OPERATIONS CONTROL CENTER MANAGER CONCERNING THE FLEET MANAGEMENT CAPABILITIES OF THE BOC.

7. **Develop an educational campaign to focus on ISOTP as the embodiment of our business.** We need to be able to make the operators aware of their part while at the same time making sure that we can't let up striving to reduce the things that cause us to lose service. Divisions use ATMS to place messages on daily paddle boards that they receive at sign-on and to some extent that has been a successful means of communication. What we need is a major campaign to bring home to every operator their part in the delivery of service. This campaign or something like it would allow us to prepare the messages that show the benefits to the operators as well as our customers for leaving terminals on time.

**ACTION:** THE DIVISION MANAGEMENT REPRESENTATIVE WILL CONTACT MARKETING WITH THE GOAL OF DESIGNING AN INFORMATIONAL CAMPAIGN. STAFF HAVE USED A POWERPOINT THAT HAS BEEN SUCCESSFUL IN EDUCATING OPERATORS. THE DIRECTOR OF INFORMATION MANAGEMENT HAS ADDITIONAL MONITORS THAT CAN BE USED TO DISPLAY THE ON-TIME PERFORMANCE MAPS FROM NEXTBUS. THE DIVISION MANAGEMENT REPRESENTATIVE WILL CONTACT DIVISIONS FOR THEIR CAPABILITY TO PLACE ANOTHER MONITOR IN THE TRAIN ROOM AND WHETHER OR NOT THE SAFETY TELEVISION SETS ARE CONNECTED TO THE NETWORK.

8. **Managing customer complaints** Staff are working to improve reliability.

# Appendix P



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**SYSTEM SAFETY & OPERATIONS COMMITTEE  
SEPTEMBER 19, 2013**

**SUBJECT: TITLE VI SYSTEM MONITORING REPORT**

**ACTION: ADOPT REVISED STOP SPACING STANDARDS AND RECEIVE AND  
FILE TRIENNIAL SYSTEM MONITORING REPORT**

**RECOMMENDATION(S)**

1. Approve the recommended revised Stop Spacing Standards presented in Attachment A.
2. Receive and file the Triennial System Monitoring Report (Attachment B) required by Title VI

**ISSUE**

Federal Transit Administration (FTA) Circular 4702.1B, Title VI Requirements and Guidelines for Federal Transit Administration Recipients, effective October 1, 2012, requires the preparation of a System Monitoring Report at least once every three years. The report includes an assessment of how well bus and rail services meet the adopted Service Policies and Standards (last approved by the Board in March 2013). In instances where standards are not met the report also includes discussion of reasons, and incorporation of a plan of action for achieving targets. The Stop Spacing standard was found to unnecessarily limit accessibility to services. The follow-up action is a proposed revision that permits closer spacing.

**DISCUSSION**

The Board of Directors adopted revisions to five service standards (Passenger Loading, Headways, On-Time Performance, Stop Spacing and Accessibility) and two service policies (Passenger Amenities and Vehicle Assignment) in March 2013. Those standards and policies established thresholds for performance by mode for Metro Operations.



The principal focus of the System Monitoring Report is an evaluation of compliance with the adopted service policies and standards. This evaluation found compliance with five of the seven standards. Current service was found to be inconsistent with the On-Time Performance and Stop Spacing standards.

The On-Time Performance standard requires that 90% of lines achieve at least 90% of the current year's goal (presently 80%). Only 69% of lines met this standard, and minority lines were found to have significantly less compliance (67%) than non-minority lines (77%) resulting in a disparate impact (a 10% absolute difference between minority and non-minority compliance for system monitoring has been established as the threshold for a disparate impact). The report presents a limited history of past efforts to improve on-time performance, and notes that a Task Force has been established to more thoroughly identify reasons for not conforming with the standard and methods to improve performance.

The Stop Spacing standard requires that 90% of routes have average stop spacing (miles between stops) within one-tenth mile of specified distances which vary by service type (1.50 miles for Heavy & Light Rail, 1.25 miles for BRT & Express bus, 0.75 mile for Rapid bus, 0.50 mile for Limited Stop bus, and 0.25 mile for Local & Shuttle bus). The idea behind this standard was that there is a tradeoff between accessibility of services (necessitating more frequent stops) and travel time (necessitating fewer stops). The report found that this standard was met only 73% of the time primarily because many routes in the various service types had more stops than the standard would allow. There was a significant difference between minority (69%) and non-minority (85%) route compliance because many minority routes had more stops than the standard would accept. This is actually a beneficial circumstance because it means that minority routes are generally much more accessible (in terms of quantity and nearness of stops) than non-minority routes. While this finding may be viewed as positive it, nevertheless, does not meet the adopted Stop Spacing standard. In this instance, staff believes that the adopted standard is too narrow (that more stops are not necessarily negative, particularly in higher density congested areas) and should be revised. A proposed revised standard is presented in Attachment A which removes the minimum threshold on stop spacing, and requires only that 90% of routes not exceed the maximum distances specified by service type.

## **DETERMINATION OF SAFETY IMPACT**

The requested actions in this report will have no direct impact on the safety of Metro's employees or customers.

## **FINANCIAL IMPACT**

The actions requested in this report have no direct impact upon Metro's expenditures or revenues. Approval is consistent with the implementation of service included in the adopted FY2014 Budget. Continuing the existing Stop Spacing standards without revision could have adverse impacts on future year operating budgets.

## **Impact to Budget**

Approval of this report is consistent with the FY2014 adopted budget.

## **ALTERNATIVES CONSIDERED**

The alternative of not revising the Stop Spacing standards would be inconsistent with established practice, and could have significant adverse impacts on passenger access and convenience should the agency remove bus stops to comply with an inappropriate standard.

Board acceptance of a System Monitoring Report is a requirement of the Title VI Guidance. Failure to do so could lead to a finding of non-compliance with Title VI and loss of eligibility for federal funds.

## **NEXT STEPS**

The System Monitoring Report will be submitted to FTA by October 1, 2013, in order to comply with the triennial reporting deadline established for LACMTA by the FTA.

## **ATTACHMENTS**

- A. Proposed Revisions to Stop Spacing Standards
- B. Title VI System Monitoring Report
- C. On-Time Performance Task Force Work Program

Prepared by: Conan Cheung, DEO of Service Planning & Development  
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Frank Alejandro  
Chief Operations Officer

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Arthur T. Leahy  
Chief Executive Officer

**ATTACHMENT A  
PROPOSED REVISIONS TO STOP SPACING STANDARDS**

**Stop Spacing**

Proposed stop spacing standards are shown in Table A-1. This revision is recommended because the current standards unnecessarily limit the accessibility to services by providing both a lower and an upper limit to stop spacing. The Rapid standard has been increased from .75 to .80, and the Limited increased from .50 to .60. The standards indicate the maximum stop spacing in miles by type of service, and are not to be exceeded by at least 90% of all routes operated.

**Table A-1: Maximum Stop Spacing Standards (in miles)**

Heavy Rail	1.50
Light Rail	1.50
BRT	1.25
Rapid	0.80
Express	1.25
Limited	0.60
Local	0.25
Shuttle	0.25

**ATTACHMENT B  
TITLE VI SYSTEM MONITORING REPORT**

A System Monitoring Report is required by Title VI guidelines at least once every three years. Adopted service policies and standards are assessed for compliance as well as any inequities that may exist between minority and non-minority services. Metro has seven service policies and standards that are monitored for compliance comprising:

- Passenger Loading;
- Headways;
- On-Time Performance;
- Stop Spacing;
- Accessibility;
- Passenger Amenities; and
- Vehicle Assignment.

The last three of these standards are monitored at the system level. The first four are monitored at the route or line level, and require determination of whether a route or line is deemed minority or non-minority. Title VI guidelines stipulate that a route will be deemed minority if at least one-third of its length operates within census areas that are significantly minority (e.g. higher minority population share than the service area as a whole). While individual reclassifications are possible if additional data is available to support it, this report retains the classification for each route as determined by the FTA method.

The line classifications are as follows (Table 1) (routes are classified the same as their parent line) based upon December 2012 line definitions:

**Table 1: Line Classification for System Monitoring**

Service Type	Minority Lines (Routes)	Non-Minority Lines (Routes)
Local	10(48),14(37),16,18,28,30,33,35(38),40,45,51(52),53,55,60,62,66,70,71,76,78(79),81,83,84(68),94,102,105,108,110,111,115,117,120,125,126,127,128,130,152,163(162),166,176,177,190(194),200,202,204,205,206,207,209,210,211(215),212,224,230,232,233,234,246,251,252,254,256,258,260,265,266,267(264),268,270,290,292	2,4,20,90(91),92,96,150(240),154,155,156,158,161,164,165,167,169,175,180(181),183,201,217,218,220,222,236(237),239,243(242),245(244)
Shuttle	603,605,607,611,612,620,625,665	645,685,687(686)
Limited	(311,312,316,330,352,353,355,358,364,378)	(302),344
Express	442,450,460,485,487(489),550,577,910	534
Rapid	705,710,720,728,733,734,740,745,751,754,757,760,761,762,770,794	704,741,750,780
BRT		901
Rail	801,802(805),803,804,806	

## Passenger Loading

**Standard:** The standard establishes the maximum ratio of passengers to seats during any one hour period, and should not be exceeded at least 95% of the time. The peak (6-9am and 3-7pm weekdays) and off-peak (all other times) standards are the same, as follows: Heavy Rail – 2.30; Light Rail – 1.75; and Bus – 1.30.

**Monitoring Result:** The most recent quarterly data available for this report spans January-March of 2013 and documents the maximum observed load ratio (passengers divided by seats) for every hour operated for each line. Rail lines are not included in this report as the data presently collected for overall ridership estimation is not extensive enough to permit establishing maximum loads by hour by individual rail car.

Since weekday, Saturday and Sunday data is included in the monitoring program, the monitoring is summarized on a composite weekly basis (weekday data is multiplied by five and added to Saturday and Sunday data). The results are summarized in Table 2.

**Table 2: Compliance with Passenger Loading Standard  
Average Week – January-March 2013**

	# of Lines	# of Hourly Intervals	PEAK		OFF-PEAK		
			# of Non-Compliant Intervals	% Compliant	# of Non-Compliant Intervals	% Compliant	
Minority (1)	104	7,105	10	99.86%	18,493	54	99.71%
Non-Minority	38	2,660	0	100.00%	6,333	14	99.78%

(1) Does not include 5 rail lines also classified as Minority

Compliance is robust for all classifications of the data as this standard is consistently met.

## Headways

**Standard:** The Headway standard varies by type of service and time of day as shown in Table 3. The standard establishes the maximum gap (in minutes) between trips in the peak direction of travel at the maximum load point of a line. The standard should not be exceeded in at least 90% of all hourly periods.

**Table 3: Headway Standards (in minutes)**

Service Type	Peak	Off-Peak
Heavy Rail	10	20
Light Rail	12	20
BRT	12	30
Rapid	20	30
Express	60	60
Limited	30	60
Local	60	60
Shuttle	60	60

**Monitoring Result:** Trips were compiled by time of day and day of the week for each line in the peak direction of travel at the maximum load point. Service between 6:00am and midnight was tested to determine whether the requisite number of trips required by the Headway standard were operated in each time period. For example, if a 20-minute maximum headway were permitted in the AM Peak period (6-9am), then at least nine trips had to be scheduled to comply with the standard. Every time period in which service was operated was categorized as complying, or not complying, with the standard and the number of hours in that time period was assigned to the appropriate category. To account for variation by day type a composite week consisting of five weekdays plus a Saturday and a Sunday was compiled for each line. The results are summarized in Table 4.

**Table 4: Weekly Headway Compliance**

	# of Lines	PEAK			OFF-PEAK			COMBINED		
		# of Hourly Intervals	# of Non-Compliant Intervals	% Compliant	# of Hourly Intervals	# of Non-Compliant Intervals	% Compliant	# of Hourly Intervals	# of Non-Compliant Intervals	% Compliant
Minority	111	3,815	75	98.03%	9,014	921	89.78%	12,829	996	92.24%
Non-Minority	36	1,330	35	97.37%	2,924	407	86.08%	4,254	442	89.61%
								17,083	1,438	91.58%

Peak period compliance is better than 97% for both minority and non-minority lines. However, off-peak compliance is notably lower. This is not unexpected since the off-peak includes the start and end of service for many lines (those without owl service), and trips may not be operated throughout these time periods. Overall compliance meets the standard, and there is no significant disparity between minority and non-minority lines though minority lines have slightly better overall compliance.

## On-Time Performance

**Standard:** Service is considered on-time if the departure from a designated time point is no more than one minute early and no more than five minutes late. Performance is measured at all established time points excluding line terminals. The standard requires that at least 90% of lines achieve at least 90% of the current year's objective. For FY2013, the objective is 80% on-time for bus operations. The established rail standard is 95% on-time, but monitoring data is not yet available as an interface to the SCADA computer system that governs rail operations needs to be developed.

**Monitoring Result:** On-time performance was measured for a composite week consisting of five weekdays plus a Saturday and a Sunday. The results are provided in Table 5.

**Table 5: Weekly On-Time Performance**

	Weighted # of Lines	# of Non- Compliant Lines	% Compliant
Minority (1)	677	226	66.62%
Non-Minority	247	57	76.92%
	924	283	69.37%

(1) excludes five Minority rail lines

Overall compliance is significantly below the 90% required, and is significantly poorer for minority lines than non-minority lines creating a disparate impact as the difference is greater than 10%.

While the overall objective is 80% on-time the bus system falls short of that level of performance at all times: 74.8% average on-time on weekdays; 70.8% on Saturdays; and 75.8% on Sundays. Performance tends to decline as the day goes on (Table 6).



**Table 6: Weekday On-Time Performance**

<b>Time of Day</b>	<b>System On-Time Performance</b>
Early AM (4-6am)	88.9%
AM Peak (6-9am)	80.5%
Midday (9am-3pm)	75.6%
PM Peak (3-7pm)	68.6%
Early Evening (7-9pm)	71.0%
Late Evening (9-Mid)	73.9%
Owl (Mid-4am)	74.2%

Also notable, the rate of early departures has begun to increase after efforts had been made to address this. Early departures are presently 6.6% of trips for the January-March quarter which is unacceptable.

Since 2009 the agency has undertaken extraordinary efforts to improve on-time performance with some success (Table 7).

**Table 7: Historical On-Time Performance**

Apr-09	69%
Apr-10	74%
Apr-11	76%
Apr-12	78%
Apr-13	76%

An on-time performance task force was established in 2009 to identify issues affecting service reliability and to implement solutions. Some of the early solutions included ensuring buses left divisions and terminals on time, as well as disciplining operators for running “hot” or ahead of schedule. A new on-time performance task force was created in July 2013 and recommendations for implementation are presented in Attachment C.

In addition, a Task force has been established to look specifically at Line 720. Schedule adjustments will be implemented in September, which include four standby buses to be managed by supervisors as well as a monitoring program to manage bus bunching.

### **Stop Spacing**

**Standard:** The Stop Spacing standard establishes a range of distances within which the average distance between stops must fall for at least 90% of all routes. The range for each service type is within one-tenth mile of the values shown in Table 8.

**Table 8: Stop Spacing Standards (in miles)**

Service Type	Stop Spacing
Heavy Rail	1.50
Light Rail	1.50
BRT	1.25
Rapid	0.75
Express	1.25
Limited	0.50
Local	0.25
Shuttle	0.25

**Monitoring Result:** Average stop spacing was determined for every route by dividing the bidirectional total number of stops (or stations) by the bidirectional route length. The results are summarized in Table 9.

**Table 9: Stop Spacing Standard Compliance**

	MINORITY			NON-MINORITY		
	# of Routes	# Conforming	% Conforming	# of Routes	# Conforming	% Conforming
Local	83	71	85.54%	34	34	100.00%
Shuttle	9	8	88.89%	4	2	50.00%
Limited	10	3	30.00%	2	1	50.00%
Express	9	1	11.11%	1	0	0.00%
Rapid	16	8	50.00%	4	2	50.00%
BRT	0	0		1	0	0.00%
Rail	6	1	16.67%			
Combined	133	92	69.17%	46	39	84.78%
			OVERALL	179	131	73.18%

Overall compliance is significantly below the required 90% with a significant difference between minority and non-minority routes. Poor compliance is primarily attributable to non-local service types. Further analysis disclosed that the predominant reason for non-compliance was too many stops (average stop spacing falling below the minimum standard). While this is beneficial from a customer perspective because it provides greater access, it is noncompliant with the standard as adopted. Under the circumstances this finding suggests that the adopted standard is too restrictive, and a less restrictive standard has been proposed in Attachment A. It is noted that if the proposed revised standard were to be in effect then minority compliance would be at 94.74%, non-minority compliance would be at 95.65%, and overall compliance would be at 94.97%.

## Accessibility

**Standard:** This standard states that service is to be provided within one-quarter mile of 99% of census tracts having at least three households per acre and/or at least four jobs per acre within Metro’s service area. Fixed route service provided by other operators may be used to meet this standard.

**Monitoring Results:** Only one census tract (#4087.23) meeting the stated criteria is not within one-quarter mile of a fixed route transit stop. This tract is in the southeastern portion of Los Angeles county in an unincorporated area known as Rowland Heights. It is the only non-compliant tract of 1,891 that meet the stated criteria for a compliance of 99.95%.

## Passenger Amenities Policy

**Policy Statement:** This policy provides a minimum standard for the provision of passenger amenities at all Metro owned off-street facilities that serve passengers as shown in Table 10.

**Table 10: Passenger Amenities Policy**

Shelters:	HR – not applicable LR – at least 80 linear ft. Bus – at least 6 linear ft. per bay
Seating:	HR – at least 12 seats LR – at least 10 seats Bus – at least 3 seats per bay
Info Displays:	HR – at least 12 LR – at least 10 Bus – at least 3
LED Displays:	HR – at least 8 arrival/departure screens LR – not applicable Bus – not applicable
TVMs:	HR/LR = at least 2 Bus – not applicable
Elevators:	HR – at least 2 LR – at least 1 for elevated/underground Bus – at least 1 for multi-level terminals
Escalators:	HR – at least 4 (2 Up / 2 Down) LR – not applicable Bus – not applicable
Waste Receptacles:	HR – at least 6 LR – at least 2 Bus – at least 1 per 3 bays / 2 minimum

**Monitoring Result:** Based upon surveys conducted in 2011 and 2013 all facilities covered by this policy meet the minimum standards provided.

**Vehicle Assignment Policy**

**Policy Statement:** This policy provides the basis for how vehicles will be assigned to operating facilities as stated in Table 11.

**Table 11: Vehicle Assignment Policy**

Heavy Rail:	Not applicable – only one line and one vehicle type
Light Rail:	Vehicles will be assigned to individual lines on the basis of compatibility of vehicle controllers with each line’s signal system. The number of vehicle types/manufacturers will be kept to no more than two at any facility to minimize parts storage and maximize maintenance expertise.
Bus:	Vehicles will be assigned to individual facilities on the basis of vehicle size requirements for lines supported by each facility.

**Monitoring Result:** There is only one Heavy Rail facility and associated operating yard, the policy is not applicable to this mode.

Light Rail vehicle assignments are shown in Table 12.

**Table 12: Light Rail Vehicle Assignments**

Vehicle Type	Div 11	Div 21	Div 22
AnsaldoBreda2550Base		50	
Nippon Sharyo 2020	15		
Nippon Sharyo 865	54		
Siemens 2000 Base			29
Siemens 2000 GE/ATP	23		

The two Nippon Sharyo vehicle types shown assigned to Division 11 are essentially the same vehicle, but acquired through two separate procurements. Therefore, the light rail policy is being followed.

Bus assignments are documented in the Equipment Assignment Report (Report 4-12) most recently issued for the June 2013 service change. The report is too voluminous to include here, but it follows the bus vehicle assignment policy in assigning buses to operating facilities.

## ATTACHMENT C

### ON-TIME PERFORMANCE TASK FORCE

The goal for this effort is to meet or exceed the 80% target systemwide by the end of the fiscal year. In the latest Service Performance Analysis report, ISOTP through the end of June pegged the 2014 systemwide YTD achievement at 77% and 2013 YTD AT 75.8%. This table displays YTD 2014 and 2013 achievements:

DIVISION	2014 YTD	2013 YTD
1	78.6%	79.6%
2	78.4%	74.1%
3	75.4%	76.1%
5	72.6%	75.9%
6	74.9%	75.3%
7	74.4%	71.9%
8	86.4%	79.8%
9	76.5%	76.1%
10	71.9%	71.8%
15	80.3%	77.5%
18	74.2%	75.8%
SYSTEM	77.0%	75.8%

The on time performance standard for every bus division is 80%; Metro is 3-4 points away from making the target. A meeting was held on July 22, 2013 to discuss the various options and to explore ways to obtain and maintain the improvement.

The on time performance task force consists of all disciplines responsible for some aspect of reliable service, including Operations management, Scheduling / Operations Planning, Information Technology Services (ITS), Bus Operations Control (BOC), Vehicle Operations (VO), Bus Maintenance, Division Transportation, and others.

#### **Several efforts are underway to address various aspects of on time performance:**

1. To identify focus areas to address, additional reports will be developed to be able to identify poor on time performance by street segment, line, and operator. These reports will “drill down” to details including time of day, day of week, and direction.
2. Scheduling will continue to work to improve running times to match on street experience, and to develop service plans that are easily operated. Some of the efforts over the last few years are to reduce the number of timepoints to allow operators to better manage line segments, reducing complexity in line variants and branches, and reducing the length of lines. These strategies were a result of observed issues impacting on time performance.
3. Vehicle Operations supervisors and Bus Operations Controllers will begin to enforce running early as a major rule violation. This strategy was employed a few years ago which resulted in significant improvements to earlies. Contract service divisions have already begun disciplining operators regarding this issue and are currently posting less than 1% early in their on time performance.

4. Bus Operations Control will monitor services remotely and work with Vehicle Operations supervisors to move and adjust bus locations to ensure late operators are put back on time and spacing between bus headway is normalized. Line 720 will be an initial line saturation effort with dedicated supervisors managing the line during the PM peak period when on time performance is significantly impacted.
5. Division Management will contact Operators with a high early or late percentage and begin corrective actions.
6. Bus Operations Control and Vehicle Operations will review weekly statistics showing Operators with the highest lates, earlies and road calls.
7. Division management will develop campaigns to educate and enforce with the operators the importance of on time performance. They will target worst performing operators for more training and coaching to improve their performance. Campaigns will also ensure that on time performance trends and information are shared with operators.
8. Operations staff is working with TAP card staff to develop ticket validators to be used for rear door boarding on Rapid and Silver Line service. This effort is expected to speed boardings at major stop locations.
9. Maintenance will support this effort by ensuring that buses are available for on time pull outs, and road calls are minimized.