

Converting Reactive Service Adjustments to Responsive Service Adjustments Through Review of Maximum Customer Loads



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2013 Multimodal Operations Planning Workshop



Data Review Prior To Service Changes

Take Note

Remove 7/23/12

METRO'S Publication for Service Adjustment

Service Updates

Coming August 26, 2012
Information is subject to change



METRO will conduct a public hearing to receive comments on proposed service adjustments for Sunday, August 26, 2012. METRO has scheduled the public hearing for:

Friday, July 20, 2012
Noon
2nd Floor, Board Room, 1900 Main
Downtown at Main and St. Joseph Parkway

New METRO
Going Places



Tome Nota

Remove 11/15/12

Publicación de METRO sobre ajustes en el servicio

Actualizaciones del servicio

A partir del 27 de enero 2013
La información está sujeta a modificaciones



METRO organizará una reunión pública para recibir comentarios sobre las propuestas de ajustes de servicio que se implementarán a partir del domingo 27 de enero de 2013. METRO ha planificado la reunión pública para el día:

Miércoles 14 de noviembre de 2012
A las 12 del mediodía
2º piso, Sala de la Junta, 1900 Main
Centro de la ciudad, en Main y St. Joseph Parkway

New METRO
Allá Vamos




Take Note

Remove April 10, 2013

METRO'S Publication for Service Adjustment

Service Updates

Coming June 9, 2013
Information is subject to change

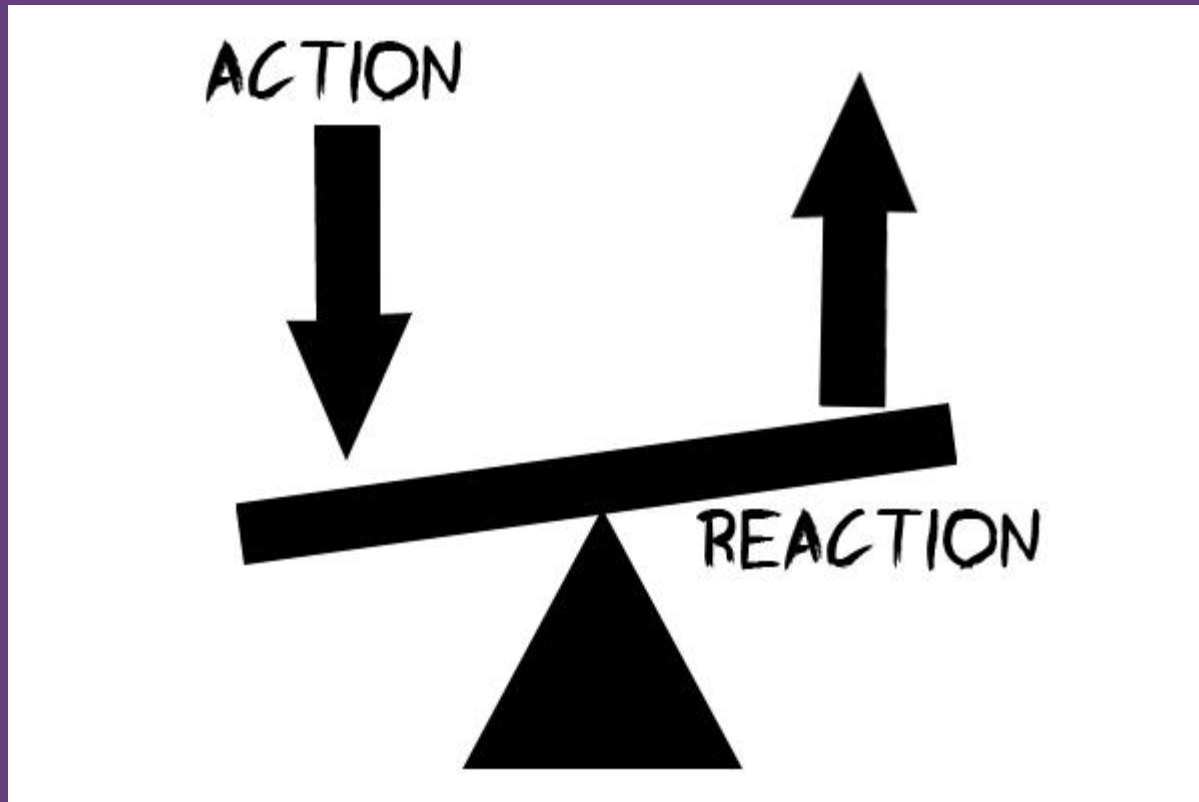


METRO will conduct a public hearing to receive comments on proposed service adjustments for Sunday, June 9, 2013. Information will also be presented regarding proposed changes to METRO's service and fare equity policies. METRO has scheduled the public hearing for:

Tuesday, April 9, 2013
1 p.m.
2nd Floor, Board Room, 1900 Main
Downtown at Main and St. Joseph Parkway

New METRO
Going Places

Reactive Service Adjustments Lead To....



When you REACT...

Requires urgent action

Evaluation done with limited time for quality control

Adds external stresses to the process

Caters to isolated instances excluding system-wide view

Targets “squeaky wheel” complaints



METRO's Service Standards

What Constitutes An Overload?

- Weekday Service - Local:
135% seating utilization
- Weekday Service (on freeway) - Local:
100% seating utilization
- Weekday Service - Commuter:
100% seating utilization
- Weekend Service - Local:
100% seating utilization

Monitoring Customer Loads

Step One: Gather the Data

- All 1,250 + METRO buses equipped with Automatic Passenger Counters (APC)
- Trip-level data available daily, extracted weekly
- Data sorted by service type, day type, maximum load factor
- Trips over / under maximum load standards

A tilted image of a data table or spreadsheet. The table has multiple columns and rows of data, but the text is too small to read. It appears to be a printout of data, possibly related to the bus load monitoring mentioned in the text.

Monitoring Customer Loads

Step 2: Organize the Data

From This



Date	Line	Block	Pattern	Sched. start	Full capacity	Max	Load factor [%]
20-Mar-13	163	163551	163692 CONGRESS ST @ LA BRANCH ST (9196) -> MISSOURI CITY PR (97)	14:05:00	38	40	105
20-Mar-13	163	163508	163501 MISSOURI CITY PR (97) -> CONGRESS ST @ LA BRANCH ST (9196)	14:21:00	38	32	84
20-Mar-13	163	163504	163691 CONGRESS ST @ LA BRANCH ST (9196) -> BURDINE ST @ BELLFORT AVE (11797)	14:23:00	38	64	168
20-Mar-13	163	163515	163502 BURDINE ST @ BELLFORT AVE (11797) -> CONGRESS ST @ LA BRANCH ST (9196)	14:34:00	38	23	61
20-Mar-13	163	163505	163692 CONGRESS ST @ LA BRANCH ST (9196) -> MISSOURI CITY PR (97)	14:35:00	38	33	87
20-Mar-13	163	163591	163691 CONGRESS ST @ LA BRANCH ST (9196) -> BURDINE ST @ BELLFORT AVE (11797)	14:45:00	38	22	58
20-Mar-13	163	163506	163692 CONGRESS ST @ LA BRANCH ST (9196) -> MISSOURI CITY PR (97)	14:55:00	38	32	84
20-Mar-13	163	163552	163691 CONGRESS ST @ LA BRANCH ST (9196) -> BURDINE ST @ BELLFORT AVE (11797)	14:59:00	38	14	37
20-Mar-13	163	163501	163501 MISSOURI CITY PR (97) -> CONGRESS ST @ LA BRANCH ST (9196)	15:00:00	38	33	87
20-Mar-13	163	163581	163691 CONGRESS ST @ LA BRANCH ST (9196) -> BURDINE ST @ BELLFORT AVE (11797)	15:05:00	38	28	74
20-Mar-13	163	163503	163502 BURDINE ST @ BELLFORT AVE (11797) -> CONGRESS ST @ LA BRANCH ST (9196)	15:14:00	38	20	53
20-Mar-13	163	163580	163640 PLAZAMERICAS (7440) -> BURDINE ST @ BELLFORT AVE (11797)	15:14:00	38	14	37
20-Mar-13	163	163507	163692 CONGRESS ST @ LA BRANCH ST (9196) -> MISSOURI CITY PR (97)	15:16:00	38	38	100
20-Mar-13	163	163502	163691 CONGRESS ST @ LA BRANCH ST (9196) -> BURDINE ST @ BELLFORT AVE (11797)	15:26:00	38	32	84
20-Mar-13	163	163582	163692 CONGRESS ST @ LA BRANCH ST (9196) -> MISSOURI CITY PR (97)	15:36:00	38	39	103
20-Mar-13	163	163551	163501 MISSOURI CITY PR (97) -> CONGRESS ST @ LA BRANCH ST (9196)	15:38:00	38	23	61
20-Mar-13	163	163516	163502 BURDINE ST @ BELLFORT AVE (11797) -> CONGRESS ST @ LA BRANCH ST (9196)	15:42:00	38	0	0
20-Mar-13	163	163508	163691 CONGRESS ST @ LA BRANCH ST (9196) -> BURDINE ST @ BELLFORT AVE (11797)	15:46:00	38	27	71
20-Mar-13	163	163554	163540 BURDINE ST @ BELLFORT AVE (11797) -> HILLCROFT TC (71)	15:56:00	38	48	126
20-Mar-13	163	163555	163692 CONGRESS ST @ LA BRANCH ST (9196) -> MISSOURI CITY PR (97)	15:57:00	38	47	124
20-Mar-13	163	163580	163502 BURDINE ST @ BELLFORT AVE (11797) -> CONGRESS ST @ LA BRANCH ST (9196)	15:58:00	38	32	84
20-Mar-13	163	163553	163691 CONGRESS ST @ LA BRANCH ST (9196) -> BURDINE ST @ BELLFORT AVE (11797)	16:07:00	38	39	103
20-Mar-13	163	163505	163501 MISSOURI CITY PR (97) -> CONGRESS ST @ LA BRANCH ST (9196)	16:10:00	38	21	55
20-Mar-13	163	163504	163502 BURDINE ST @ BELLFORT AVE (11797) -> CONGRESS ST @ LA BRANCH ST (9196)	16:10:00	38	31	82
20-Mar-13	163	163515	163692 CONGRESS ST @ LA BRANCH ST (9196) -> MISSOURI CITY PR (97)	16:18:00	38	23	61
20-Mar-13	163	163556	163691 CONGRESS ST @ LA BRANCH ST (9196) -> BURDINE ST @ BELLFORT AVE (11797)	16:27:00	38	69	182
20-Mar-13	163	163506	163501 MISSOURI CITY PR (97) -> CONGRESS ST @ LA BRANCH ST (9196)	16:28:00	38	23	61

To This



Month of March 2013 (Summary)				
Route	Monthly Trips with APC Data	Monthly Trips ≥ 135% Seating Capacity	Monthly Trips ≥ 100% ≤ 135% Seating Capacity	Monthly Trips % ≥135% Seating Capacity
163 Fondren	2,879	117	439	4.1%

Monitoring Customer Loads

Step 3: Analyze, Prioritize, Recommend

- **WHO** is affected by overloads?
- **WHAT** do the trips before and after look like? Do they have overloads as well?
- **WHEN** do the overloads occur? At a particular time or day? How frequently? How many trips have overloads?
- **WHERE** do the overloads occurs? Over what distances do they occur?
- **WHY** recommend a service adjustment?

August Service Change Bottom Line First

Route	Total Trips APC Data	Trips w/ Maximum Loads Less Than Maximum Service Standards	% Trips w/ Maximum Loads Less Than Maximum Service Standards	Trips w/ Maximum Loads Greater Than Maximum Service Standards	% Trips w/ Maximum Loads Greater Than Maximum Service Standards
Weekday – Commuter	29,077	28,522	98.0%	555	1.9%
Weekday - Local	120,185	119,824	99.7%	361	0.3%
Saturday - Local	14,945	14,544	97.3%	401	2.7%
Sunday – Local	10,512	10,318	98.2%	194	1.8%
TOTAL – March (4 weeks)	174,719	173,208	99.1%	1,511	0.9%

99.1% of all trips had maximum loads below the maximum service levels

Local Weekday Routes

Overall – OK, but...

Route	Total Trips APC Data	Trips w/ Maximum Loads Less Than Maximum Service Standards	% Trips w/ Maximum Loads < Than Maximum Service Standards	Trips w/ Maximum Loads > Than Maximum Service Standards	% Trips w/ Maximum Loads > Than Maximum Service Standards
Weekday - Local	120,185	119,824	99.7%	361	0.3%

**86% of the 361 trips
occur on these 16
routes**

WEEKDAY ROUTES - LOCAL	
TOTAL NUMBER	75
<i>Routes with zero instances of trips with maximum loads ≥ 135% of seating capacity</i>	(35)
SUBTOTAL	40
<i>Routes with below average percentage of trips with maximum loads ≥ 135% of seating capacity</i>	(24)
SUBTOTAL	16

A Closer Look at the 163 Fondren...

Date	Line	Route	Pattern	Sched. start	Full Capacity	Max Load	Load factor [%]
4-Mar-13	163	Fondren	163692 CONGRESS ST @ LA BRANCH ST (9196) -> MISSOURI CITY PR (97)	2:05 PM	38	52	137
6-Mar-13	163	Fondren	163692 CONGRESS ST @ LA BRANCH ST (9196) -> MISSOURI CITY PR (97)	2:05 PM	38	58	153
11-Mar-13	163	Fondren	163692 CONGRESS ST @ LA BRANCH ST (9196) -> MISSOURI CITY PR (97)	2:05 PM	38	52	137
11-Mar-13	163	Fondren	163691 CONGRESS ST @ LA BRANCH ST (9196) -> BURDINE ST @ BELLFORT AVE (11797)	2:23 PM	38	54	142
13-Mar-13	163	Fondren	163691 CONGRESS ST @ LA BRANCH ST (9196) -> BURDINE ST @ BELLFORT AVE (11797)	2:23 PM	38	54	142
14-Mar-13	163	Fondren	163691 CONGRESS ST @ LA BRANCH ST (9196) -> BURDINE ST @ BELLFORT AVE (11797)	2:23 PM	38	107	282
18-Mar-13	163	Fondren	163691 CONGRESS ST @ LA BRANCH ST (9196) -> BURDINE ST @ BELLFORT AVE (11797)	2:23 PM	38	57	150
20-Mar-13	163	Fondren	163691 CONGRESS ST @ LA BRANCH ST (9196) -> BURDINE ST @ BELLFORT AVE (11797)	2:23 PM	38	64	168
21-Mar-13	163	Fondren	163691 CONGRESS ST @ LA BRANCH ST (9196) -> BURDINE ST @ BELLFORT AVE (11797)	2:23 PM	38	53	139
22-Mar-13	163	Fondren	163691 CONGRESS ST @ LA BRANCH ST (9196) -> BURDINE ST @ BELLFORT AVE (11797)	2:23 PM	38	52	137
12-Mar-13	163	Fondren	163501 MISSOURI CITY PR (97) -> CONGRESS ST @ LA BRANCH ST (9196)	3:00 PM	38	53	139
4-Mar-13	163	Fondren	163691 CONGRESS ST @ LA BRANCH ST (9196) -> BURDINE ST @ BELLFORT AVE (11797)	3:26 PM	38	53	139
21-Mar-13	163	Fondren	163691 CONGRESS ST @ LA BRANCH ST (9196) -> BURDINE ST @ BELLFORT AVE (11797)	3:46 PM	38	52	137
4-Mar-13	163	Fondren	163540 BURDINE ST @ BELLFORT AVE (11797) -> HILLCROFT TC (71)	3:56 PM	38	52	137
21-Mar-13	163	Fondren	163540 BURDINE ST @ BELLFORT AVE (11797) -> HILLCROFT TC (71)	3:56 PM	38	55	145
22-Mar-13	163	Fondren	163540 BURDINE ST @ BELLFORT AVE (11797) -> HILLCROFT TC (71)	3:56 PM	38	53	139

For 7 out of 21 weekdays, this trip had maximum loads exceeding 135%

Local Weekday Outliers

163 Fondren

Route	Trip Start	Seating Capacity	Average Maximum Load	Average % Seating Capacity – Maximum Load
163 Fondren	7:20 AM	38	55	146%
163 Fondren	8:34 AM	38	56	146%
163 Fondren	2:05 PM	38	54	142%
163 Fondren	2:23 PM	38	62	162%
163 Fondren	4:57 PM	38	61	159%
163 Fondren	5:04 PM	38	59	156%
163 Fondren	5:12 PM	38	60	157%
163 Fondren	5:37 PM	38	57	151%
163 Fondren	6:33 PM	38	60	157%

9 trips on 1 route had 69 instances of overloads in excess of 135% of capacity

Local Weekday Outliers

Average Distance Standing

Route	Trip Start	Seating Capacity	Average Maximum Load	Average Distance Standing
46 Gessner	6:01 PM	38	57	5.4 miles
53 Briar Forest	6:45 AM	38	61	6.5 miles
73 Bellfort	10:42 PM	38	62	4.0 miles
82 Westheimer	7:46 AM	38	58	5.1 miles
87 Sunnyside / TMC	8:00 AM	38	59	2.3 miles
163 Fondren	7:20 AM	38	55	9.3 miles
163 Fondren	8:34 AM	38	56	3.7 miles
163 Fondren	2:05 PM	38	54	9.6 miles
163 Fondren	2:23 PM	38	62	9.0 miles
163 Fondren	4:57 PM	38	61	9.3 miles
163 Fondren	5:04 PM	38	59	9.2 miles
163 Fondren	5:12 PM	38	60	9.4 miles
163 Fondren	5:37 PM	38	57	6.9 miles
163 Fondren	6:33 PM	38	60	16.2 miles

From React Mode to Respond Mode: The Benefits

- R**esults in more equitable evaluation
- E**valuation conducted with significant quality control
- S**ystematic approach
- P**roduces historical data for trend evaluation
- O**pportunity to prioritize action
- N**avigates balance between objective data and subjective comments
- D**ata driven decision making