

# Interim Presentation on the Ongoing LACMTA 2011-2013 On-Board Survey

# Previous Practice

Paper surveys filled out by passengers while on board bus

- Heavy burden for the passenger
- 20-40 questions
  - Intimidating forms
  - Difficult questions
  - Ambiguous responses
  - Presumed short trip bias
- 15% - 30% typical completion rates



# Modeling Concepts are Confusing

- Purpose from/purpose to
- 1-Way versus Round Trip versus Leg
  - E.g. Home -> Home {Tour}?
  - E.g. Origin = Union Station?
- Routes used on this trip
  - Actual or potential?
  - Today or "typical"?



## FTA 5339 Grants

- On-Board Survey
  - Reduce Bias
    - Short Trips
  - Obtain better, more complete data
    - Itinerary/Geo-codes
- Auto Access Augment
  - Intercept Survey at stations

# On-Board Survey: Paper + Telephone Hybrid

After initial tests of more traditional methods, we discovered On-Board recruitment and telephone call back was as productive as traditional methods

## “3 Question Survey” {Really 6}

- Purpose “From”
- Purpose “To”
- ID {for Prize}
  - Name
  - Phone Number
  - Phone type
  - Best Time to Call
- Additional data captured by Survey Team  
{Date/Time/Route/Board/Alight}



# Bus Survey Productivity

	"N"	"Step"	"Cumulative"
Total Boardings {Sampled Buses}	113,038		
Cards W/Phone #	77,649	69%	69%
Valid Phone Numbers	57,066	73%	50%
Final Record {Completes}	27,273	48%	24%

# Improvements

- Reduce burden on rider during trip
  - Substantially reduced Short Trip Bias
- Better passenger flow information
  - Count Alightings/Stop as well as Boardings
  - Track Cards distributed AND returned
    - Board/Alight pairs
- Interviewer can clarify/explain/probe
- On screen mapping assistance
  - Include line/stop information for interviewer
- Yielding higher **Quality** data



# Trip Tracer example 1

smremote ( 10.2.2.54, 10.6.6.33 )

PTV TripTracer (Rel 2.3.0.2)

File Undo Help

TripNo 1 new trip copy trip copy rev trip del trip  view all trips at once

Timer: 00:18 Google Map

Search Address/Loc/Transit

Address Location Transit Line Lookup

House # Street

ZIP City

State

search Hotlist

Trip Waypoints

dayno 1 plano 1

Start 19.00 End 19.30

Destination Home edit

#	mode	rt/in	locno	name	no	street	zip	city	dist
1	wa		0	phone company	2539	E Gage Ave	90255	Hunting Park	0
2	wa	MT. 60	0	PACIFIC / GAGE				Hunting Park	0
13	bu	MT60 S	1	ALIGHTING LONG BEACH / SOUTHERN				South Gate	2.53
14	wa		0	home	8934	Cypress Ave	90280	South Gate	0.18

comments

Map

zoom out zoom in < > view full trip view total

show houseno.  show rail  
 automatic routing  show bus



# Trip Tracer example 2

PTV TripTracer (Rel 2.3.0.2)

File Undo Help

TripNo 1 new trip copy trip copy rev trip del trip  view all trips at once

Timer: 145:2 Call for help with waypoint

Search Address/Loc/Transit

Address Location Transit Line Lookup

Transit Orig/Dest City Address  Display line label on map

Transit Stop Name

name	city	System
SAN VICENTE / 6TH	Beverly Hills	bu
SAN VICENTE / GALE	Beverly Hills	bu

Line Number

MT-3

**SAN VICENTE / HAMILTON :**

city of origin name # city of destination

Los Angeles	MT-305	15	Los Angeles
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Trip Waypoints

dayno 0 plano

Start 00:00 End 00:00

Destination

edit

#	mode	rt/ln	locno	name	no	street	zip	city	dist
1			0	Westwood Pt		Westwood Pt	90024	Westwood	0
2	bu	MT-305	0	UCLA ACKERMAN LOOP L.O.				Los Angeles	0
40	bu	MT-305	0	SAN VICENTE / HAMILTON				Beverly Hills	8.4346

comments

Map

zoom out zoom in < > view full trip view total

show houseno.  show light rail

automatic routing  show bus

1000 yards

(c) PTV / NAVTEQ / AND

123 PERNO 1



# Targets

- 2% Sample
  - $1,400,000 * 0.02 = 28,000$
- Attempt to fill each expansion “Cell”
  - Surveys/Counted Boarding – by stop
    - “Run”/Time of Day/Direction
  - Surveyed Runs/Total Runs
    - Time of Day/Direction
  - Official Line Boardings
    - Daily

# Challenges

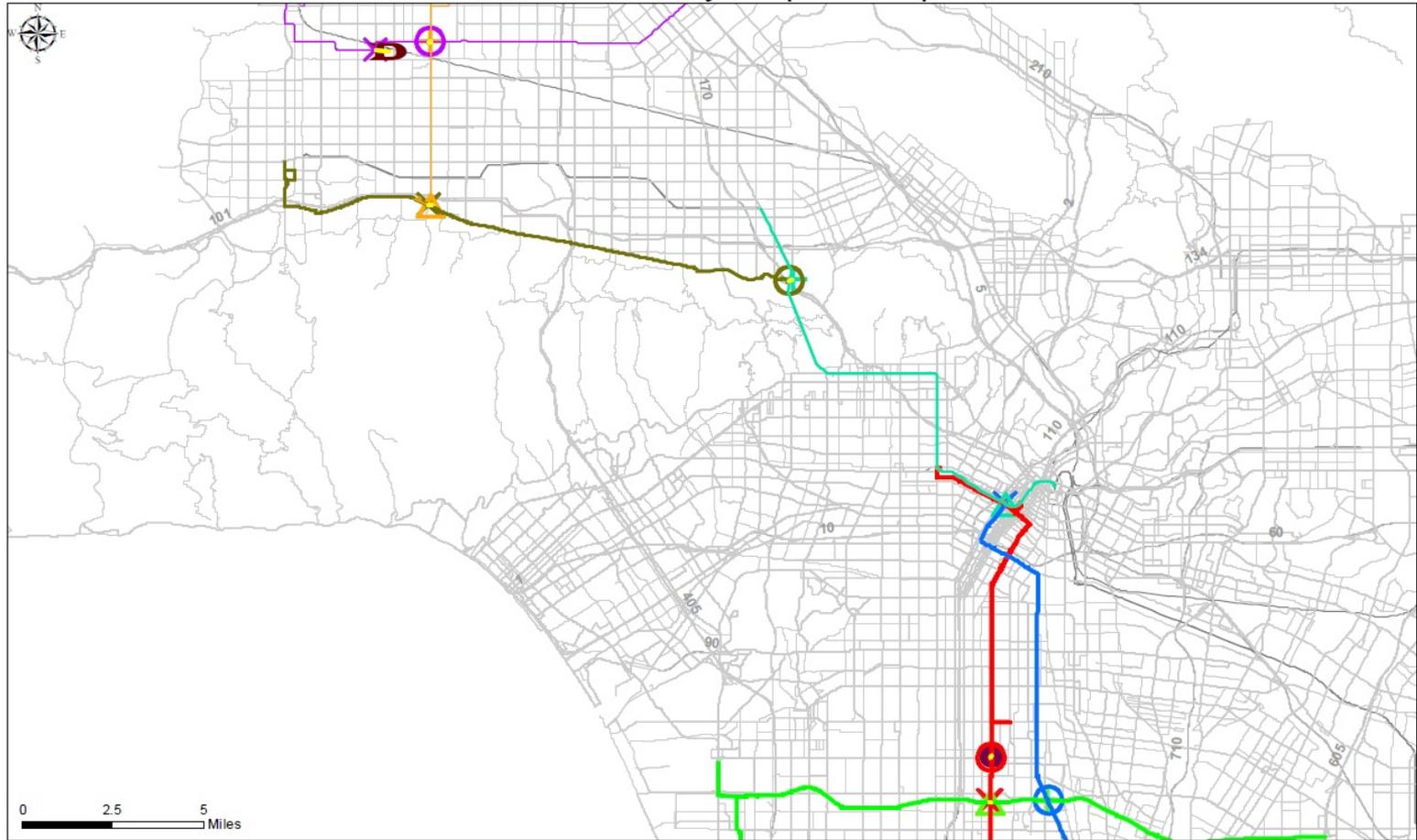
- Processing of “Cards” creates lag between recruitment and interview
  - Delayed contact with rider
    - Reduces response rate
    - Which trip was surveyed?
  - Delayed performance statistics
    - Over/under collection of “Cards” on difficult lines
- Describing location over the phone can be difficult
  - Improves with interviewer experience

# Example: Performance Tracking

Route	Sample Size	Initial Completes	Clustered Goal	Clustered Completes	% Complete	Cards Collected	Trips Surveyed	AM Peak	AM %	Mid Day	Mid Day %	PM Peak	PM %	Evening_ Early AM	Evening_ Early AM %
MT-..2	188	179	208	179	86.1%	457	8	48	26.8%	63	35.2%	61	34.1%	7	3.9%
MT-302	20					0	0		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!
MT-..4	188	162			86.2%	619	8	25	15.4%	90	55.6%	47	29.0%		0.0%
MT-..10	188	180			95.7%	444	9	32	17.8%	16	8.9%	97	53.9%	35	19.4%
MT-.48	20	247			1235.0%	636	9	79	32.0%	80	32.4%	62	25.1%	26	10.5%
MT-.14	188	226			120.2%	586	9	67	29.6%	46	20.4%	92	40.7%	21	9.3%
MT-.37	20	132			660.0%	364	6	67	50.8%		0.0%	50	37.9%	15	11.4%
MT-.16	188	177	208	191	91.8%	523	13	49	27.7%	107	60.5%	21	11.9%		0.0%
MT-316	20	14				25	1		0.0%		0.0%	14	100.0%		0.0%
MT-.18	188	359			191.0%	995	16	112	31.2%	133	37.0%	114	31.8%		0.0%
MT-.20	188	210			111.7%	619	13	48	22.9%	49	23.3%	94	44.8%	19	9.0%
MT-.26	188	192	248	994	400.8%	520	8	38	19.8%	92	47.9%	51	26.6%	11	5.7%
MT-.51	20	504				1312	18	309	61.3%	129	25.6%	66	13.1%		0.0%
MT-.52	20	167				422	8	53	31.7%	71	42.5%	21	12.6%	22	13.2%
MT-352	20	131				372	7	50	38.2%		0.0%	58	44.3%	23	17.6%
MT-.28	188	246			130.9%	629	19	102	41.5%	56	22.8%	88	35.8%		0.0%
MT-.30	188	198			105.3%	599	13	74	37.4%		0.0%	111	56.1%	13	6.6%
MT-.33	188	216			114.9%	614	12	61	28.2%	97	44.9%	51	23.6%	7	3.2%

# Path Checking

2011 On Board Survey Map - Sample: 181212



- Origin
- First Boarding
- × First Alighting
- ▲ Second Boarding
- ⊕ Second Alighting
- Third Boarding
- × Third Alighting
- ▲ Fourth Boarding
- ⊕ Fourth Alighting
- Fifth Boarding
- × Fifth Alighting
- ▲ Sixth Boarding
- ⊕ Sixth Alighting
- Seventh Boarding
- × Seventh Alighting
- ▲ Eighth Boarding
- ⊕ Eighth Alighting
- Destination

Access Mode:	Walk / Wheelchair
Egress Mode:	Walk / Wheelchair
Time Form Distributed:	4/18/2011 9:27:00 AM
Origin Place:	My home
Destination Place:	Work or Work Related
Access/Transfer/Egress	—————

Comments

NA

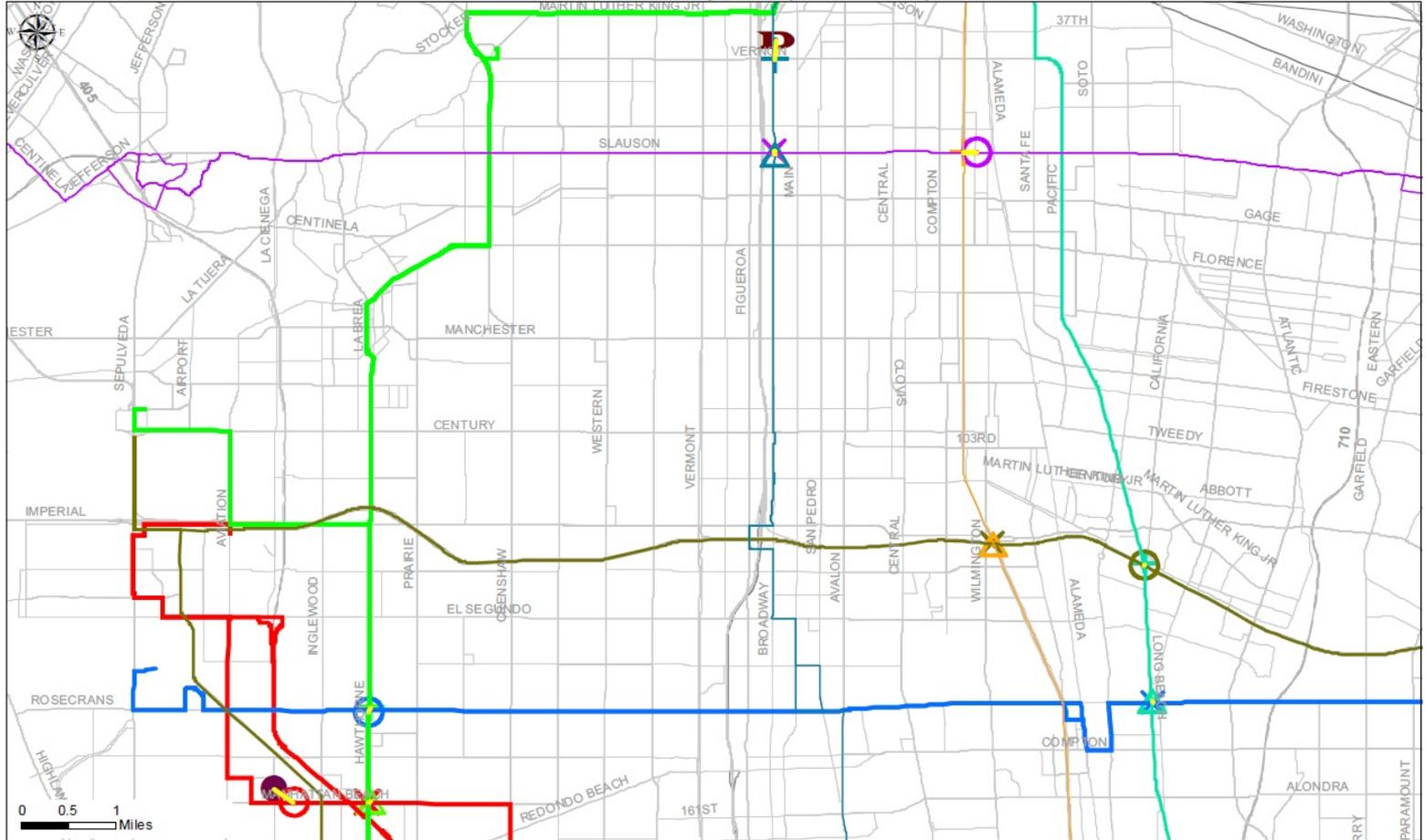
The colored text indicates surveyed line.

First Vehicle	MT-51	
Second Vehicle	MT-803	
Third Vehicle	MT-801	
Fourth Vehicle	MT-802	
Fifth Vehicle	MT-750	
Sixth Vehicle	MT-741	
Seventh Vehicle	MT-166	



# Path Checking

## 2011 On Board Survey Map - Sample: 117712



- Origin
- First Boarding
- × First Alighting
- ▲ Second Boarding
- △ Second Alighting
- Third Boarding
- × Third Alighting
- Fourth Boarding
- △ Fourth Alighting
- Fifth Boarding
- × Fifth Alighting
- ▲ Sixth Boarding
- △ Sixth Alighting
- Seventh Boarding
- × Seventh Alighting
- Eighth Boarding
- △ Eighth Alighting
- Destination

Access Mode:	Walk / Wheelchair
Egress Mode:	Walk / Wheelchair
Time Form Distributed:	2/8/2011 3:03:00 PM
Origin Place:	Work or Work Related
Destination Place:	Work or Work Related
Access/Transfer/Egress	—

Comments

NA

The colored text indicates surveyed line.

First Vehicle	MX-003	
Second Vehicle	MT-40	
Third Vehicle	MT-125	
Fourth Vehicle	MT-760	
Fifth Vehicle	MT-803	
Sixth Vehicle	MT-801	
Seventh Vehicle	MT-108	
Eighth Vehicle	MT-45	



# Path Checking

2011 On Board Survey Map - Sample: 108109



- Origin
- First Boarding
- × First Alighting
- ▲ Second Boarding
- ⊕ Second Alighting
- ⊖ Third Boarding
- ⊗ Third Alighting
- ▲ Fourth Boarding
- ⊕ Fourth Alighting
- ⊖ Fifth Boarding
- ⊗ Fifth Alighting
- ▲ Sixth Boarding
- ⊕ Sixth Alighting
- ⊖ Seventh Boarding
- ⊗ Seventh Alighting
- ▲ Eighth Boarding
- ⊕ Eighth Alighting
- ⊖ Destination

Access Mode:	Walk / Wheelchair
Egress Mode:	Walk / Wheelchair
Time Form Distributed:	1/27/2011 5:30:00 PM
Origin Place:	Social or recreational
Destination Place:	My home
Access/Transfer/Egress	—

Comments

VERIFIED WALK

The colored text indicates surveyed line.

First Vehicle	MT-803	—
Second Vehicle	MT-53	—



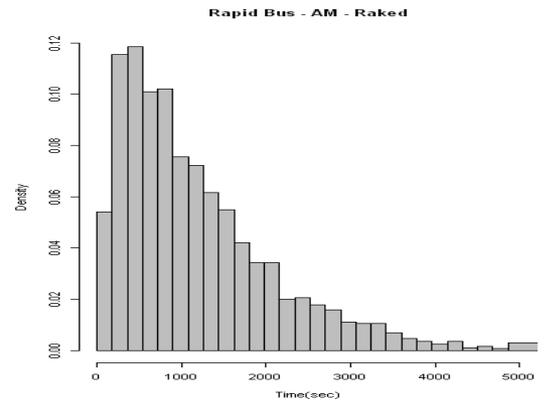
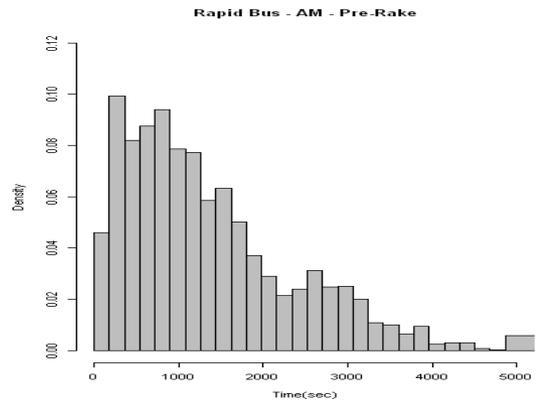
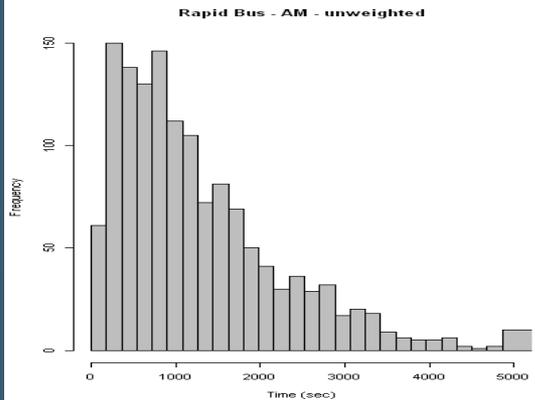
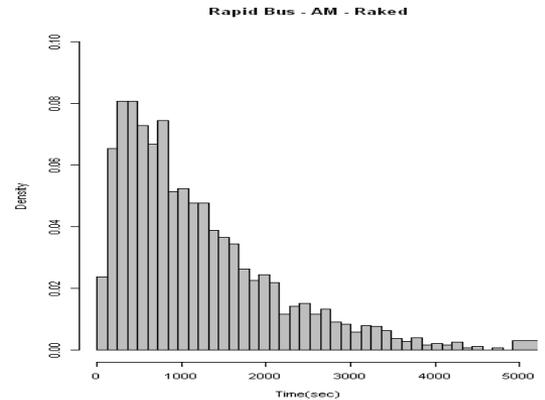
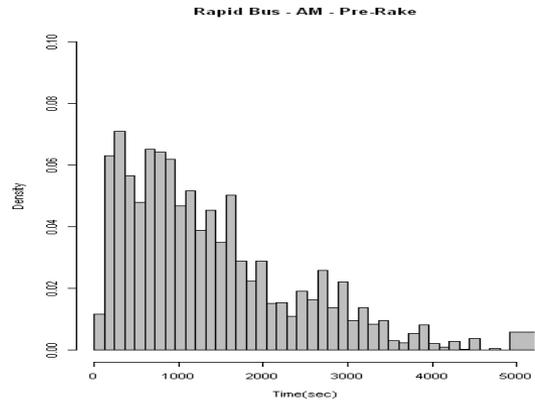
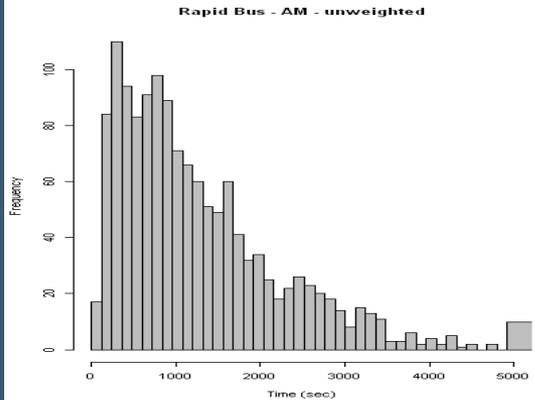
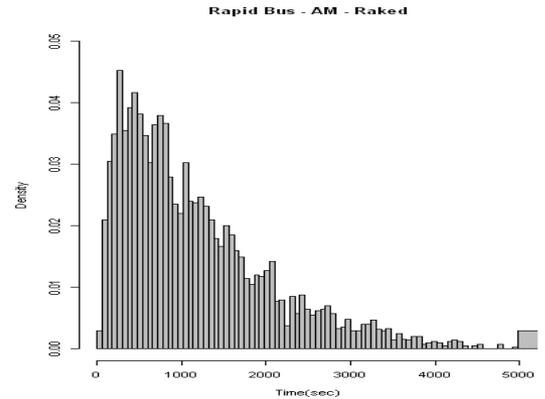
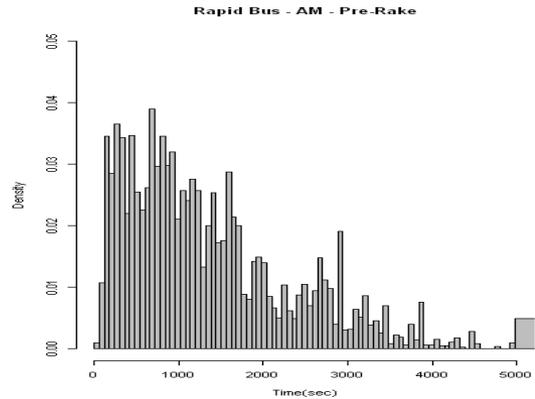
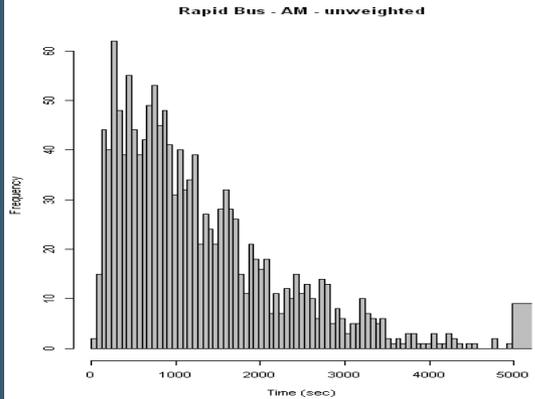
# Cross Tabs

PK	MajorMode								Total
Access		BRT	CR	LB	RB	TW	UR	XB	
	Bike	143.1	53.4	882.4	653.2	118.6	3,626.5	18.5	5,495.7
	KNR	156.5	1,086.2	6,877.1	3,148.9	369.5	13,692.8	120.8	25,451.6
	PNR	-	3,500.6	1,071.2	819.3	628.5	8,442.5	9.6	14,471.7
	Walk	10,337.3	9,660.4	344,269.9	134,729.4	12,336.8	202,422.7	2,412.7	716,169.2
	Total	10,636.9	14,300.7	353,100.6	139,350.7	13,453.5	228,184.5	2,561.5	761,588.2

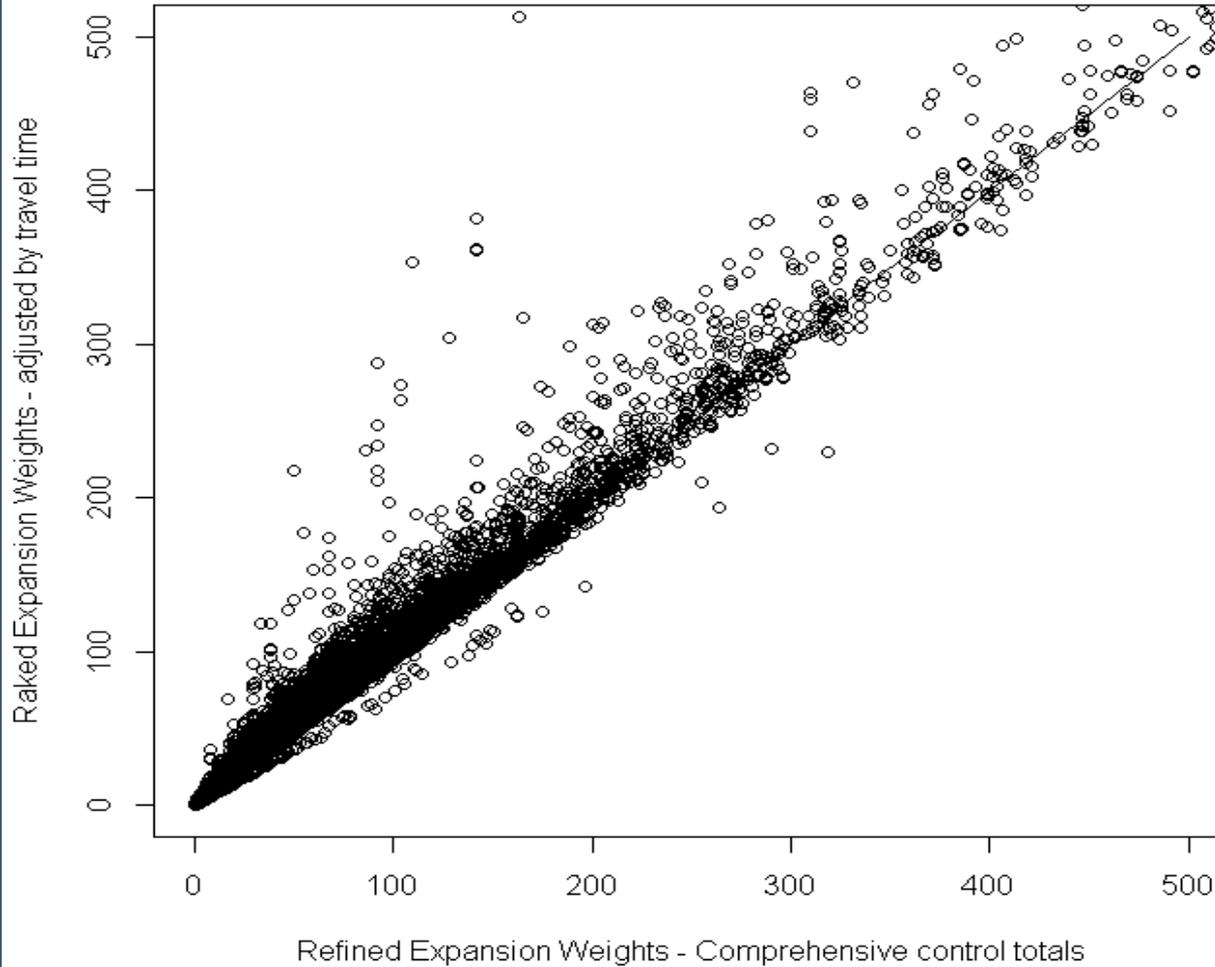
OP	MajorMode								Total
Access		BRT	CR	LB	RB	TW	UR	XB	
	Bike	242.6	23.5	930.1	843.8	15.8	3,051.8	0.6	5,108.1
	KNR	341.2	455.1	5,537.7	2,021.4	306.7	8,420.2	5.7	17,088.1
	PNR	-	442.8	834.4	89.5	151.5	4,999.2	0.0	6,517.4
	Walk	7,244.4	4,726.1	327,991.4	102,306.3	12,493.6	159,812.5	1,258.9	615,833.3
	Total	7,828.2	5,647.5	335,293.7	105,261.1	12,967.6	176,283.6	1,265.3	644,546.8

Day	MajorMode								Total
Access		BRT	CR	LB	RB	TW	UR	XB	
	Bike	385.7	76.9	1,812.5	1,497.0	134.4	6,678.2	19.1	10,603.8
	KNR	497.7	1,541.3	12,414.8	5,170.3	676.2	22,113.0	126.5	42,539.7
	PNR	-	3,943.5	1,905.6	908.8	780.1	13,441.7	9.6	20,989.1
	Walk	17,581.7	14,386.6	672,261.3	237,035.7	24,830.4	362,235.2	3,671.6	1,332,002.5
	Total	18,465.1	19,948.2	688,394.2	244,611.7	26,421.0	404,468.1	3,826.7	1,406,135.1

# Time on surveyed bus adjustment tests



# Weight changes – time adjustment tests



# Status

- MTA Bus Survey
  - Fall 2011
  - Records delivered
- MTA Rail Survey
  - Spring 2012
  - Records delivered
- Muni Bus Survey
  - Fall 2012 / Spring 2013
  - “Coming Soon”!!
- Auto Access Augment
  - Mode of Access to Stations
  - TBD

# Questions?