## 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"?



#### Sample from 2007 Rapid Bus Survey

Questions 1-8 are about this       Example One-way Train/Bus Trip:         ONE-WAY Train/Bus Trip you are making NOW!         Print clearly.       A       B       C       1       2       3       Fill bubble:       Image: Colspan="2">Colspan="2">Colspan="2"         Print clearly.       A       B       C       1       2       3       Fill bubble:       Image: Colspan="2"       I	<ul> <li>How will you get to that place from THE LAST TRAIN OR BUS you are using for this ONE-WAY TRIP? (<i>fill one bubble only</i>)</li> <li>Drive alone</li> <li>Drive with another transit passenger (I will drive)</li> <li>Ride with another transit passenger (they will drive)</li> <li>Picked up by someone not riding transit</li> <li>Walk</li> <li>Bicycle</li> <li>Other</li> </ul>	<ol> <li>Do you have a disability that PREVENTS you from driving a vehicle (whether you own a vehicle ar not?</li> <li>Yes ● No</li> <li>Yes ● No</li> <li>How many WORKING VEHICLES are available in your household?</li> <li>None → Skip to Q 14 ● 1 2 3 4 or more</li> </ol>
1b. If not home, what is the NAME of that place/building?       Example: NORTHRIDGE MALL         ICE DAY       SI NAI       MEDICAL CAL CENERS         1c. What is the EXACT STREET ADDRESS or MEAREST CROSS STREETS of that place?       Example: 9301 TAMPA AVE         I'm corrup from home now and I already provided my home address in the drawing entry section ≠ 60 to Question 2       Sizeet #         Sizeet #       Sizeet and         Mearest cross streets:       N (N D N T)         Cay       LOS         AND       Zp         Question       Zp	<ul> <li>8. How did you pay your FARE ON THIS BUS<sup>2</sup> (Fill ane bubble only)</li> <li>Cash fore Semi-Monthly Pass</li> <li>Token Monthly Pass</li> <li>Metro Day Pass</li> <li>EZ Transit Pass</li> <li>Weekly Pass</li> <li>9. Does your employer OFFER A DISCOUNT on your fore?</li> <li>Yes ⇒ What is the amount you pay for a monthly pais? \$ [2][2]</li> <li>No</li> </ul>	13. Ware any of these vehicles AVAILABLE to make this trip?           Yes         No           14. How many people live in your household (including you)?           1         2         3         4         5 or more           15. What was your estimated HOUSEHOLD INCOME (in 2005) before taxes?         Under \$7,500         \$15,000 - \$24,999         \$35,000 - \$49,999           \$7,500 - \$14,999         \$25,000 - \$34,999         \$50,000 or more           16. What is your AGE?         \$15.000 - \$34,999         \$34,999
How did you GET from that place To the FIRST TRAIN OR BUS you used for THIS ONE-WAY TRIP? (Fill ane bubble only)     Drove alone & parked     Drove alone & parked     Drove with another transit passenger (I drove)     Walked     Rode with another transit passenger (they drove)     Biggled     LIST ALL of the TRAIM LINES AND BUS ROUTES you are using to make THIS ONE-WAY TRIP:	Not employed  No	○ Under 18 ○ 25 - 34 ○ 50 - 64 ● 18 - 24 ○ 35 - 49 ○ 65 or older
<b>THEST Train Line or Bus Route#</b> $\rightarrow$ <b>SECOND</b> Train Line or Bus Route# $\rightarrow$ <b>THIED</b> Train Line or Bus Route# #740 $#720$ $#204. At what intersection did you GET OII the Metro Rapid?Mearestcross streets: N C/F M 3 N H8. SI 0 M 1615 N$	<b>16.</b> č(vál es su EDAD?) O Menor de 18 O 25-34 O 59-64 O 18-24 O 35-49 O 65 é mayor	10. c0ué tan FRECUENTE unitiza los trenes y outobuses (mimero de viojes que realiza);         realiza);         0 5 o mis dios por semana         0 5 o mis dios por semana         0 5 o mis dios por semana         0 5 o dios por semana         0 5 o dios por semana         0 7 o dios por semana
	spun 9 000 °25 ℃ 666 °25 ℃ 000 °27 °20 °20 °20 °20 °20 °20 °20 °20 °20 °20	No insue empleo
5. At what intersection will you GET OFF the Metro Rapid? Mearest cross streets: V. E.V. M.D.M.H. & WIIEh. Y. E. BIVA	75. Clutino et al. 100, 254,999 533,000 et al. 200,009 500,000 et al. 2005 200,000 et al. 2005 2005 2005 2005 2005 2005 2005 200	<ul> <li>Si → tâbé canhdad paga par mensual?</li> <li>Si → tâbé canhdad paga par un pase mensual?</li> </ul>
	2005) antes de los impuestos?	

#### Research: New Methods

## 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}



## "3 Question Survey"

Why do you use the bus or train?	Let us know to serve you better.	ends for guilling backeting
1. Where are you coming FROM n	ow?	otno blod excels Suno? A muien buo stad?
<ul> <li>Work or Work Related</li> <li>School (K-12) (student only)</li> </ul>	<ul> <li>Hotel (guest only)</li> <li>College or University (student only)</li> </ul>	01157 ය <u>හ</u> ල පා සම්මාන ස
<ul> <li>Social or Recreational</li> <li>My Home</li> </ul>	<ul> <li>Shopping</li> <li>Airport (airline passenger only)</li> </ul>	
<ul><li>Other:</li><li>2. Where are you going TO now?</li></ul>		
<ul> <li>Work or Work Related</li> <li>School (K-12) (student only)</li> <li>Social or Recreational</li> </ul>	<ul> <li>Hotel (guest only)</li> <li>College or University (student only)</li> <li>Shopping</li> </ul>	
<ul> <li>Social of Recentional</li> <li>My Home</li> <li>Other:</li> </ul>	<ul> <li>Shopping</li> <li>Airport (airline passenger only)</li> </ul>	Pleasedthe
Please provide us with your name, ph you. Once we complete the brief pho drawing for <b>\$500</b> ! Thank you.		
Name:		200
Phone: (     )	- <u> </u>	2 Tillbau
🔿 Cell/Mobile 🛛 Landline H	Iome 🔿 Landline Work	APEN
3. When is the best day/time to ca	ll you?	
🔿 Weekday 🔿 Weekend	O Daytime O Evening	一下。咱们
Metro Transil Survey For office use only:		Construction and a second

#### 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

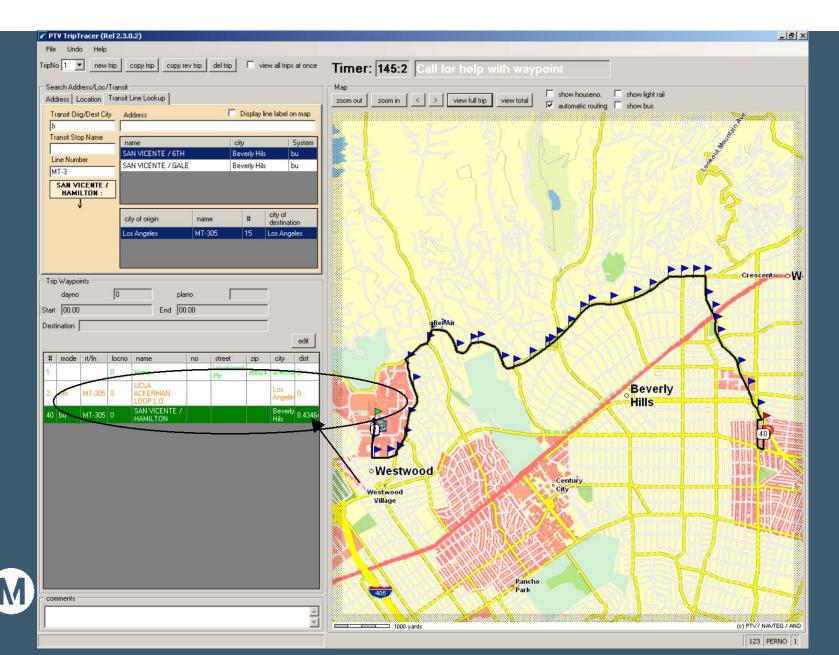
- Reduce burden on rider during trip
  - Substantially reduced Short Trip Bias
- Better passenger flow information
  - Count Alightings/Stop as well as Boardings
  - Track Cards distributed AND returned
    - Board/Alight pairs
- Interviewer can clarify/explain/probe
- On screen mapping assistance
 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



## Trip Tracer example 1

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Trip Waypoints		
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Destination Home	Milest     Flower St       Olive St     Hope St       Hope St     Hope St	
edit	Milest     Flower St       Olive St     Hope St       Hope St     Hope St	
# mode rt/ln locno name no street zip city dist	Broadway     Olive St       Broadway     Broadway       Broadway     Hill St       Broadway     Broadway       Broadway     Broadway	
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#### Trip Tracer example 2



#### 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

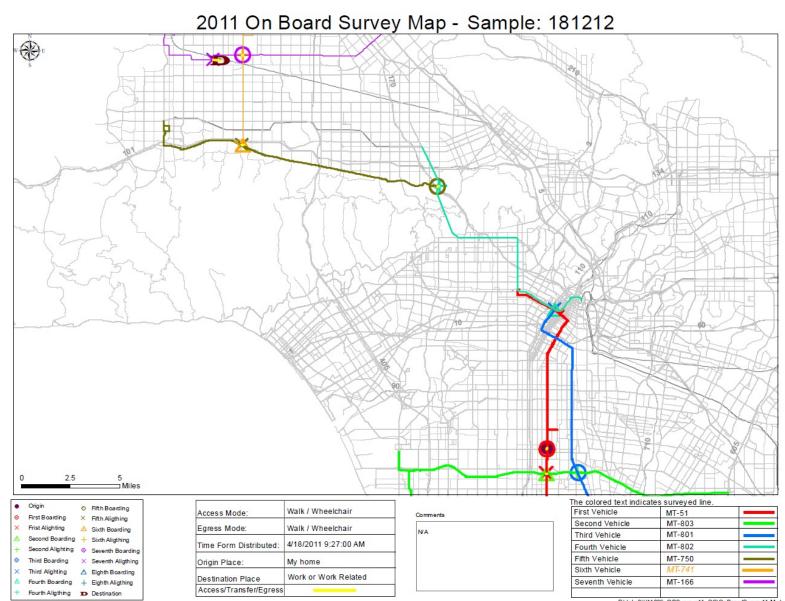


## Example: Performance Tracking

															Evening_
	Sample	Initial	Clustered	Clustered	%	Cards	Trips				Mid Day			Evening_	Early AM
Route	Size	Completes	Goal	Completes	Complete	Collected	Surveyed	AM Peak	AM %	Mid Day	%	PM Peak	PM %	Early AM	%
MT2	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!
MT4	188	162			86.2%	619	8	25	15.4%	90	55.6%	47	29.0%		0.0%
MT10	188	180			95.7%	444	9	32	17.8%	16	8.9%	97	53.9%	35	19.4%
MT48	20	247			1235.0%	636	9	79	32.0%	80	32.4%	62	25.1%	26	10.5%
MT14	188	226			120.2%	586	9	67	29.6%	46	20.4%	92	40.7%	21	9.3%
MT37	20	132			660.0%	364	6	67	50.8%		0.0%	50	37.9%	15	11.4%
MT16	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%
MT18	188	359			191.0%	995	16	112	31.2%	133	37.0%	114	31.8%		0.0%
MT20	188	210			111.7%	619	13	48	22.9%	49	23.3%	94	44.8%	19	9.0%
MT26	188	192	248	994	400.8%	520	8	38	19.8%	92	47.9%	51	26.6%	11	5.7%
MT51	20	504				1312	18	309	61.3%	129	25.6%	66	13.1%		0.0%
MT52	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%
MT28	188	246			130.9%	629	19	102	41.5%	56	22.8%	88	35.8%		0.0%
MT30	188	198			105.3%	599	13	74	37.4%		0.0%	111	56.1%	13	6.6%
MT33	188	216			114.9%	614	12	61	28.2%	97	44.9%	51	23.6%	7	3.2%

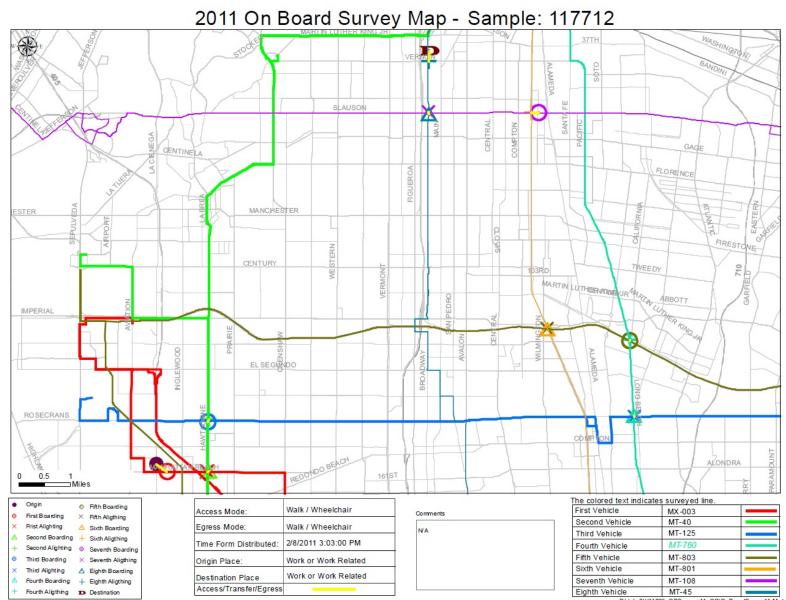


#### Path Checking



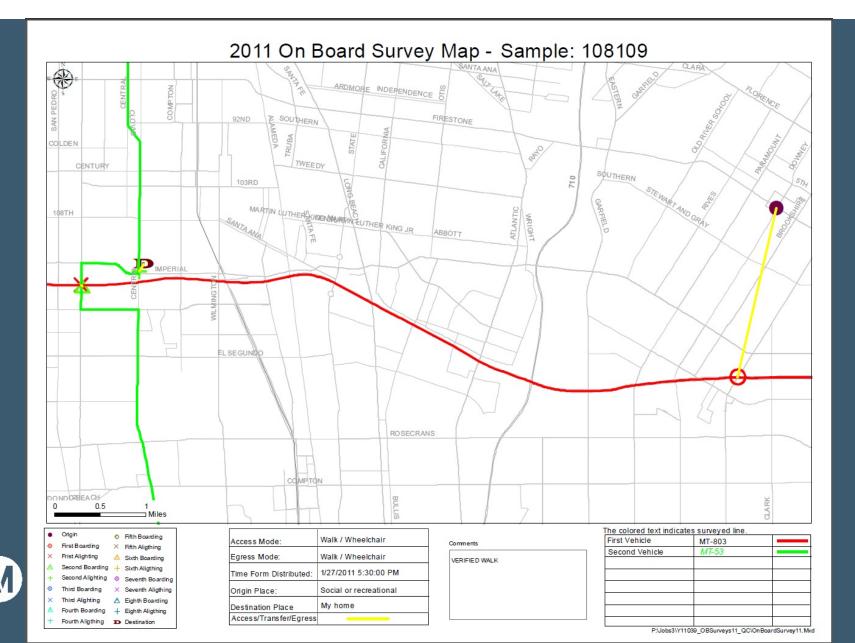
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#### Path Checking



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#### Path Checking

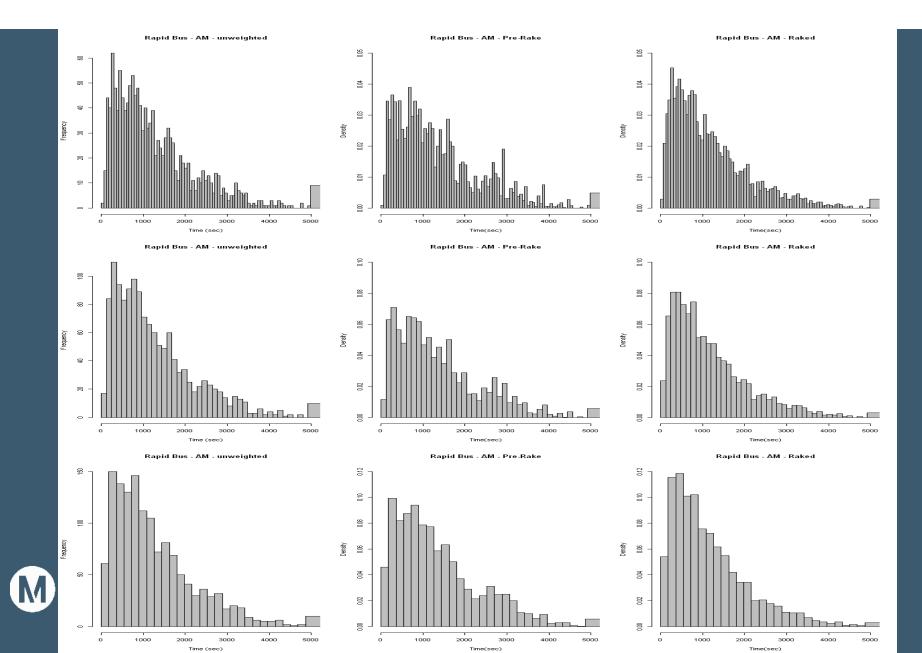


#### Cross Tabs

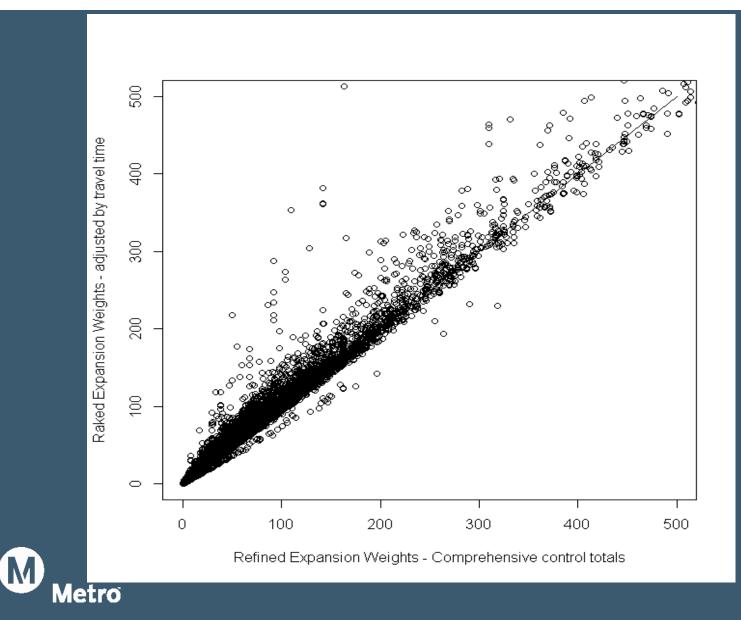
РК	MajorMode												
Access		BRT	(	CR	LB		RB		тw		UR	XE	Total
	Bike	143.1	53.4	882.4		653.2		118.6		3,626.5		18.5	5,495.7
	KNR	156.5	1,086.2	6,877.1		3,148.9		369.5		13,692.8		120.8	25,451.6
	PNR	-	3,500.6	1,071.2		819.3		628.5		8,442.5		9.6	14,471.7
	Walk	10,337.3	9,660.4	344,269.9		134,729.4		12,336.8		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												
Access	,	BRT	(	CR	LB		RB		тw		UR	XE	Total
	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												
Access		BRT	(	CR	LB		RB		тw		UR	XE	s Total
	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



