

# **Conducting On-Board Transit Rider Surveys with Electronic Handheld Tablets: An Agencywide Consolidated Approach**

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**TRB 17- 0449**

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# Presentation Focus

HISTORY  
CENTRALIZED APPROACH  
TECHNICAL FRAMEWORK  
MANAGEMENT  
SURVEY TEAM  
CONCLUSIONS

## Fall 2016 On-Board Survey

This fall, you may see TriMet staff surveying riders on board buses and trains. We're asking a series of questions about trip origin/destination, trip purpose, frequency of transit use, and your transit experience, as part of an ongoing research study that helps inform our programs and policies.

Starting in late October, TriMet survey teams will be hopping on buses, MAX and WES — even early in the morning and late at night — to get feedback from a wide cross-section of riders.

Surveyors will be working in groups of two to four, wearing blue vests labeled “TriMet Survey Team” on the front and back. They’ll have TriMet badges with photos IDs, and they’ll be carrying a handheld tablet and shoulder bag.

If you can spare a few minutes to help us out, we’d appreciate your feedback! The survey is completely anonymous, and your responses will help us learn more about how riders use the transit system, and help ensure that our services are fair and equitable.

What’s in the survey?



We have moved from paper to tablets to make the surveys quicker and easier for everyone.

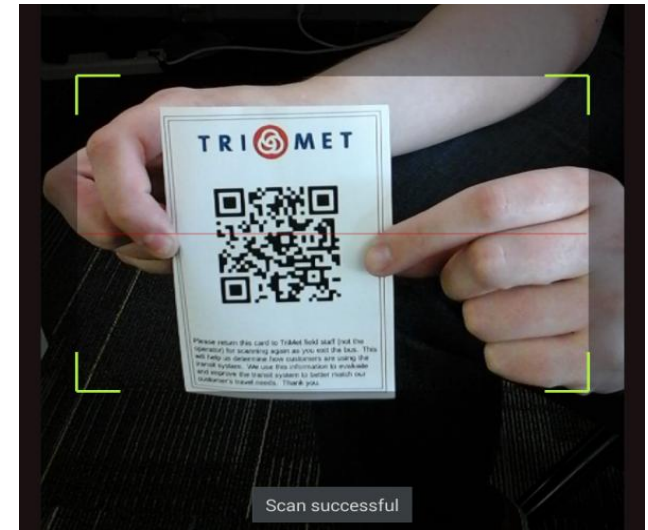
Transit surveys are required for Title VI, FTA reporting, etc.  
Research findings prompted pilot to test feasibility of tablets  
First on-board survey using tablets: 2014-15 O&D Study  
Significant savings resulted in dedicated FTE and new program  
All on-board surveys now conducted with tablets and managed centrally in IT-GIS

## HISTORY

# Origin and Destination (O&D) Study

## Short Survey Method

- Identifies on/off ridership patterns for sampling goals of long survey
- Surveyors scan QR codes with tablets at front & back doors



## Long Survey Method

- Identifies detailed ridership behavior, including origin and destination geography, transfer rates, mode of access, and demographic information
- Surveyors capture data using tablets with pre-populated answers reducing completion time and increasing accuracy



# Long Survey Questions

Section 1: To be filled out by surveyor

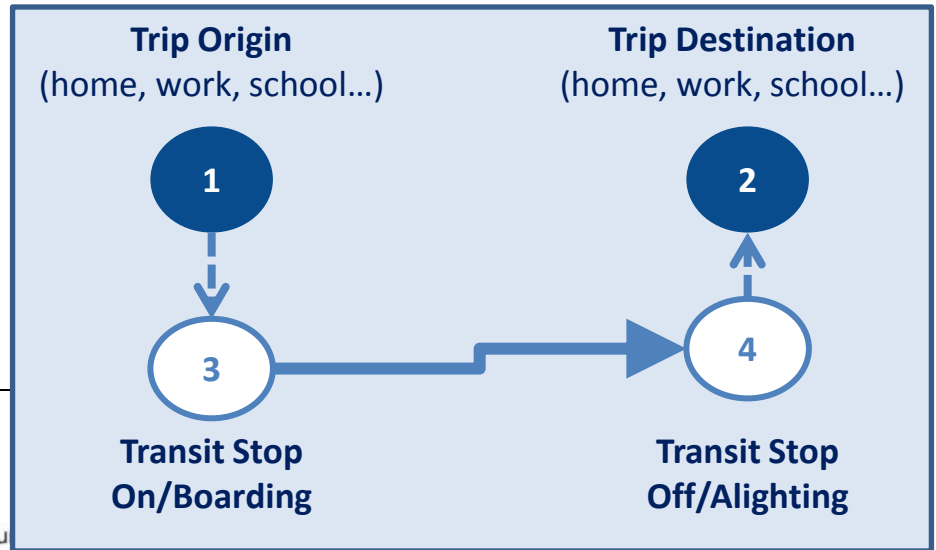
- Current Route Information
- Origin, Destination, and Transfer Information

Section 2: To be filled out by respondent

- Fare Type
- Prior trip history
- Major reason for using TriMet
- Driver's license
- Household: size, employment, vehicles, ethnicity, income

# Paper Survey Challenges

## Address Geocoding



### TRI MET RIDERSHIP SURVEY

To help us plan better service, please tell us about you  
**Fill out this form even if you have already received one before, or rarely use TriMet.**  
When finished, place the form in the envelope near the door, or you may return it by postage-paid mail.

#### Example: One-way Trip

(Start) Home → Bus → MAX → Work (End)

#### ORIGIN – Where you started this one-way trip

##### 1. Where did you first START this one-way trip? (Check one best answer.)

- |  |  |   |
|--|--|---|
| <input checked="" type="checkbox"/> 1 Home | <input type="checkbox"/> 4 Recreation        | <input type="checkbox"/> 7 Medical appointment/hospital visit |
| <input type="checkbox"/> 2 Work            | <input type="checkbox"/> 5 Shopping          | <input type="checkbox"/> 8 Visit family/friends               |
| <input type="checkbox"/> 3 School          | <input type="checkbox"/> 6 Personal business | <input type="checkbox"/> 9 Other (specify) :                  |

##### 2. Where was that located? (Complete address & city OR street/cross street & city OR landmark.)

Street: (circle one) NE SE NW SW N S E W **???**

Nearest Cross Street: 17th SE

City: Gresham Zip Code: 97030

##### 3. How did you get to the stop where you boarded the first bus, MAX, WES or streetcar on this one-way trip?

(Check one best answer.)

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> 1 Walked # blocks: <u>1</u> | <input type="checkbox"/> 4 Drove & parked (parking location) :     |
| <input type="checkbox"/> 2 Dropped off                          | <input type="checkbox"/> 5 Carpooled & parked (parking location) : |
| <input type="checkbox"/> 3 Bicycled                             | <input type="checkbox"/> 6 Other (specify) :                       |



ODK Collect > TriMet\_Pilot\_v3

Survey > Origin

**Starting location**  
Where did you first START this one-way trip?

☐ Your usual WORKPLACE  
☐ Other business related  
☒ Your HOME  
☐ College / University (students only)  
☐ Airport (as an air passenger)  
☐ Recreation / sightseeing  
☐ Medical appointment / doctor's visit  
☐ Social visits (friends/relatives)  
☐ Personal business (bank, post office)  
☐ Pick up/drop off someone (daycare, school)  
☐ Shopping  
☐ Eating/Dining Out  
☐ School (K-12)  
☐ Hotel  
☐ Sporting event  
☐ Other

LocationSurvey

nw 5th and dav

NW Davis St & NW 5th Ave, Portland  
 NW 5th Ave & NW Davis St, Portland  
 N Davis St & N 5th Ave, Cornelius  
 N 5th Ave & N Davis St, Cornelius  
 NW 5th & Davis, Portland

Cancel Submit

davis dav da

1 2 3 4 5 6 7 8 9 0 Del

q w e r t y u i o p

a s d f g h j k l Done

↑ z x c v b n m , . ? ↑

Ctrl Sym English(US) ⌂ ⬅ ➡

ODK Collect > TriMet\_Pilot\_v3

Survey

Click to choose the ON and OFF stops

Swipe right when finished

ON Stop

OFF Stop

←

LocationSurvey

Enter Stop Name or Stop ID

Stop Sequence

On Stop	Off Stop
SE Powell & 40th	SE Powell & 40th
SE Powell & Cesar Chavez Blvd	SE Powell & Cesar Chavez Blvd
SE Powell & 36th	SE Powell & 36th
SE Powell & 34th	SE Powell & 34th
SE Powell & 33rd	SE Powell & 33rd
SE Powell & 28th	SE Powell & 28th
SE Powell & 26th	SE Powell & 26th
SE Powell & 24th	SE Powell & 24th
SE Powell & 21st	SE Powell & 21st
SE Powell & Milwaukie	SE Powell & Milwaukie
SE Powell & 9th	SE Powell & 9th
SW Kelly & Corbett	SW Kelly & Corbett
SW Arthur & 1st	SW Arthur & 1st
SW Broadway & 5th	SW Broadway & 5th
SW 6th & Mill	SW 6th & Mill
SW 6th & Clay	SW 6th & Clay
SW 6th & Main	SW 6th & Main
SW 6th & Alder	SW 6th & Alder
SW 6th & W Burnside	SW 6th & W Burnside
NW 6th & Flanders	NW 6th & Flanders

Submit

LocationSurvey

Enter Stop Name or Stop ID

Stop Sequence

Submit

OpenStreetMap contributors



# Tablet Survey Challenges

## Avoiding Bias

To avoid research bias with tablets, fielding practices need to be revised, as paper surveys are handed out to everyone.

For the O&D study, which was route-based, a random number generator on tablet was used to determine which rider to approach.

However, for the 2016 Spring Fare Survey project, as many people as possible were surveyed on each trip, with the data weighted against passenger counts from APCs.



# AGENCY-WIDE SURVEY PROGRAM

# **Survey Program Managed by IT-GIS “Electronic Survey Developer and Analyst”**

Responsibilities include:

- Collaboration with business units to identify survey requirements and formation of questionnaires
- Overarching oversight to ensure consolidation of surveys in support of agency-wide initiatives
- Technical and programming aspects involving mobile applications and devices
- Staffing, managing and scheduling aspects
- Post-data analysis and reporting functions
- GIS spatial database management, generation, and data distribution

# Advantages of Centralized Approach

- Centralized budget consolidates resources and simplifies billing across multiple departments
- Eliminates redundancy and overlap between surveys
- Lowers overall costs and enables more ad-hoc surveys
- Internal business knowledge retained:
  - Capital Projects and Construction
  - Finance
  - Service Planning
  - Public Affairs
  - Operations
  - Information Technology
  - GIS

# Agency Surveys

2016-17 Winter

- Customer travel pattern change (churn rate)
- Customer satisfaction and experience
- O&D
- Demographics
- Used for equity analysis, and planning and analysis purposes

Fare Evasion

Fare

O&D Before and After Studies

Operator Intercept

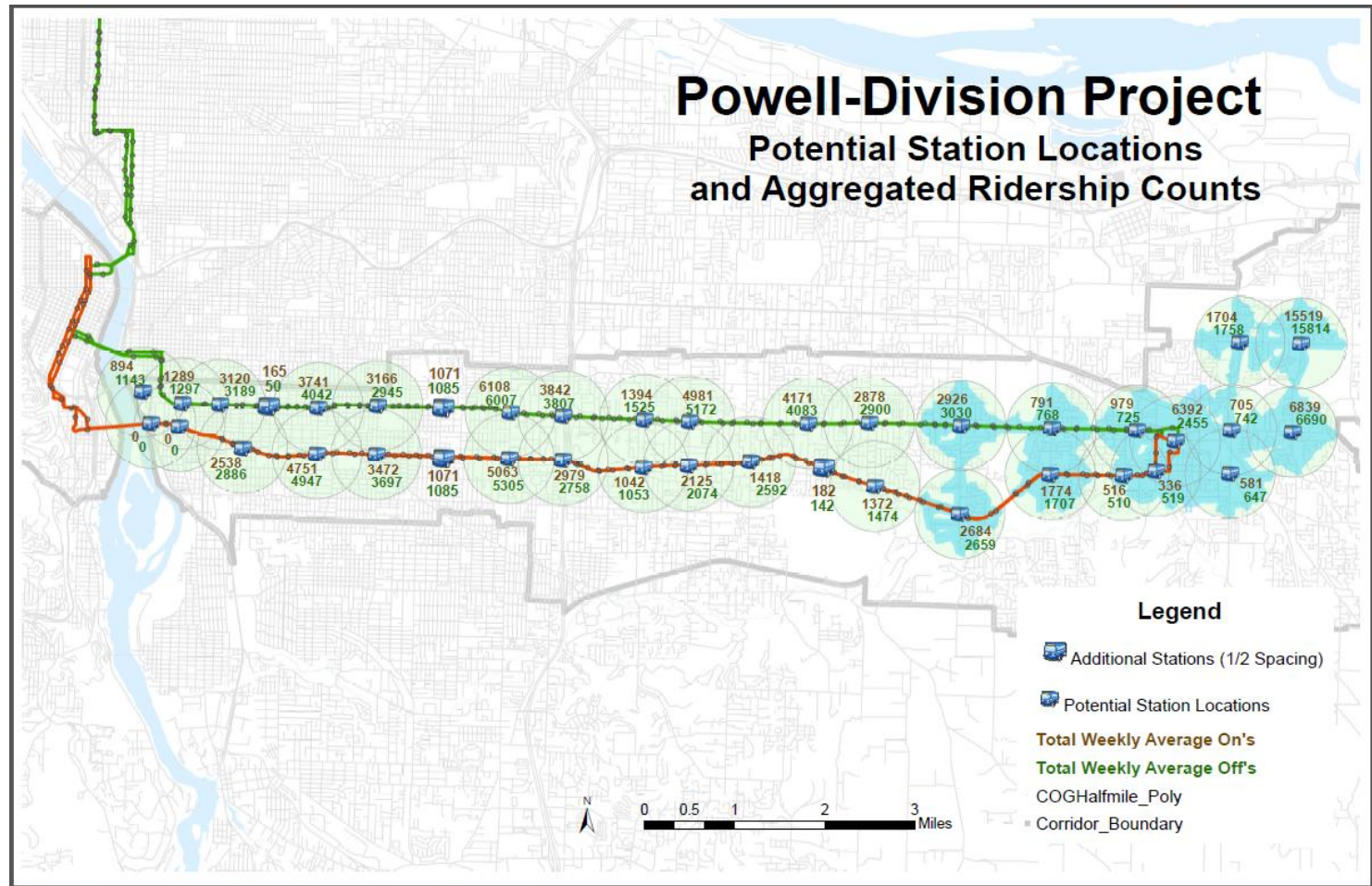
Sporting event surveys

APC validation

Ad-hoc surveys for planning and analysis

# Powell-Division Project

## Potential Station Locations and Aggregated Ridership Counts





Materials and Services

Software

Database Design and Management (Postgres)

## **TECHNICAL FRAMEWORK**

# Materials & Services

## Equipment and Peripherals

- Samsung Galaxy 8" tablet - \$250
- Samsung Galaxy tablet case - \$17
- Safety Vest - \$25
- Reading Light with Clip - \$8
- Tech Gear Bag – \$8
- iRoller (liquid free, reusable touch screen cleaner for dirt and bacteria) - \$20
- Extra batteries were not necessary due to battery life of devices and shift hours

## Cellular Service

- Android Tablets - \$40/month
- Phone fees for supervisors \$37/month

# Software

Open Data Kit (ODK) was selected based on requirements, costs and the ability to easily customize for various surveys. It is a collection of open source tools for survey design, collection, and data aggregation and is recommended by industry experts.

*Code, etc. available on GitHub at:*

<https://github.com/gis-survey>

In-house developed Android apps integrated with ODK to capture the on-off stop information.

Communication & Management Tools:

- Trello -track materials; meetings; milestones; stakeholders; staffing; and tasks
- Google Docs - shift scheduling and shared project documentation.
- Google Groups -communication between surveyors and management

Sampling

Dashboard Monitoring

Pilot Testing

# MANAGEMENT

# Management of Sampling

- Extensive training
- Scheduled group meetings with surveyors
- Field supervision
- On-board monitoring of interviewer performance
- Dashboards: real-time report monitoring

# Dashboard – Surveyors

## On-Off Dashboard

Route:

4-Division/Fessenden ▼

Direction:

All ▼

Surveyor:

All ▼

Download

Date	Time	User	Route	Direction	On Stop	Off Stop
2015-12-04	18:17:48/18:12:42	richardm/richardm	4-Division/Fessenden	To St Johns	SW 6th & W Burnside	NW Everett & 5th
2015-12-04	18:17:43/18:07:56	richardm/richardm	4-Division/Fessenden	To St Johns	SW 6th & Taylor	NW Everett & 5th
2015-12-04	18:17:36/18:12:47	richardm/richardm	4-Division/Fessenden	To St Johns	SW 6th & W Burnside	NW Everett & 5th
2015-12-04	18:17:29/18:12:56	richardm/richardm	4-Division/Fessenden	To St Johns	SW 6th & W Burnside	NW Everett & 5th
2015-12-04	18:17:23/18:13:01	richardm/richardm	4-Division/Fessenden	To St Johns	SW 6th & W Burnside	NW Everett & 5th
2015-12-04	18:17:13/18:13:05	richardm/richardm	4-Division/Fessenden	To St Johns	SW 6th & W Burnside	NW Everett & 5th
2015-12-	18:17:06/17:48:01	richardm/richardm	4-	To St Johns	SE Division & Cesar Chavez	NW Everett & 5th



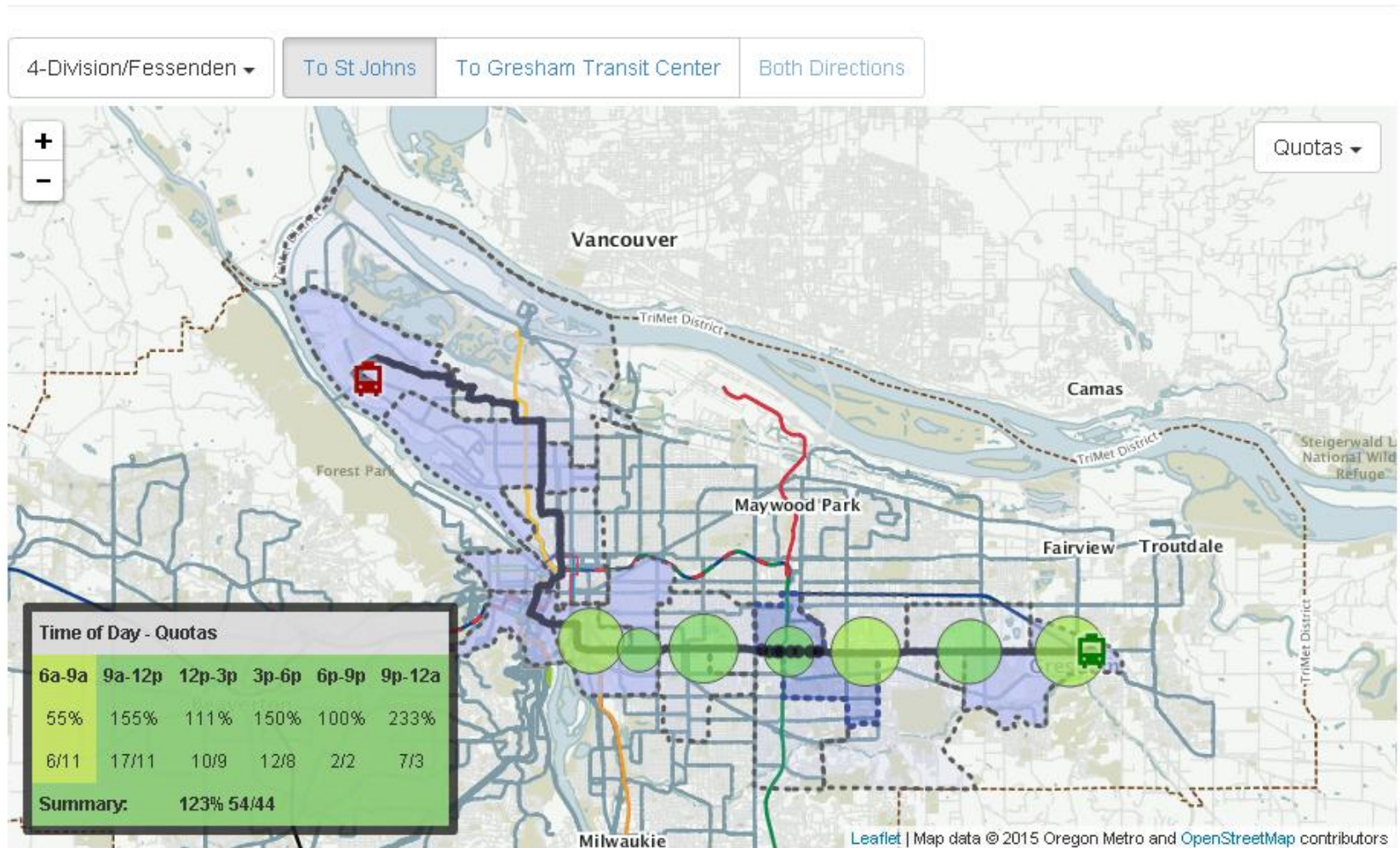
# Dashboard – Project Status

## On-Off Dashboard

	Total	Inbound				Outbound			
		AM	Mid	PM	Eve	AM	Mid	PM	Eve
<b>4-Division/Fessenden</b>	117%	59%	118%	65%	158%	182%	131%	191%	108%
<b>9-Powell Blvd</b>	0%	0%	0%	0%	0%	0%	0%	0%	0%
<b>17-Holgate/Broadway</b>	0%	0%	0%	0%	0%	0%	0%	0%	0%
<b>19-Woodstock/Glisan</b>	0%	0%	0%	0%	0%	0%	0%	0%	0%
<b>29-Lake/Webster Rd</b>	0%	0%	0%	0%	0%	0%	0%	0%	0%
<b>30-Estacada</b>	0%	0%	0%	0%	0%	0%	0%	0%	0%
<b>32-Oatfield</b>	0%	0%	0%	0%	0%	0%	0%	0%	0%
<b>33-McLoughlin/King Rd</b>	0%	0%	0%	0%	0%	0%	0%	0%	0%
<b>34-Linwood/River Rd</b>	0%	0%	0%	0%	0%	0%	0%	0%	0%
<b>35-Macadam/Greeley</b>	0%	0%	0%	0%	0%	0%	0%	0%	0%
<b>70-12th/NE 33rd Ave</b>	0%	0%	0%	0%	0%	0%	0%	0%	0%
<b>75-Cesar Chavez/Lombard</b>	0%	0%	0%	0%	0%	0%	0%	0%	0%
<b>152-Milwaukie</b>	0%	0%	0%	0%	N/A	0%	0%	0%	N/A

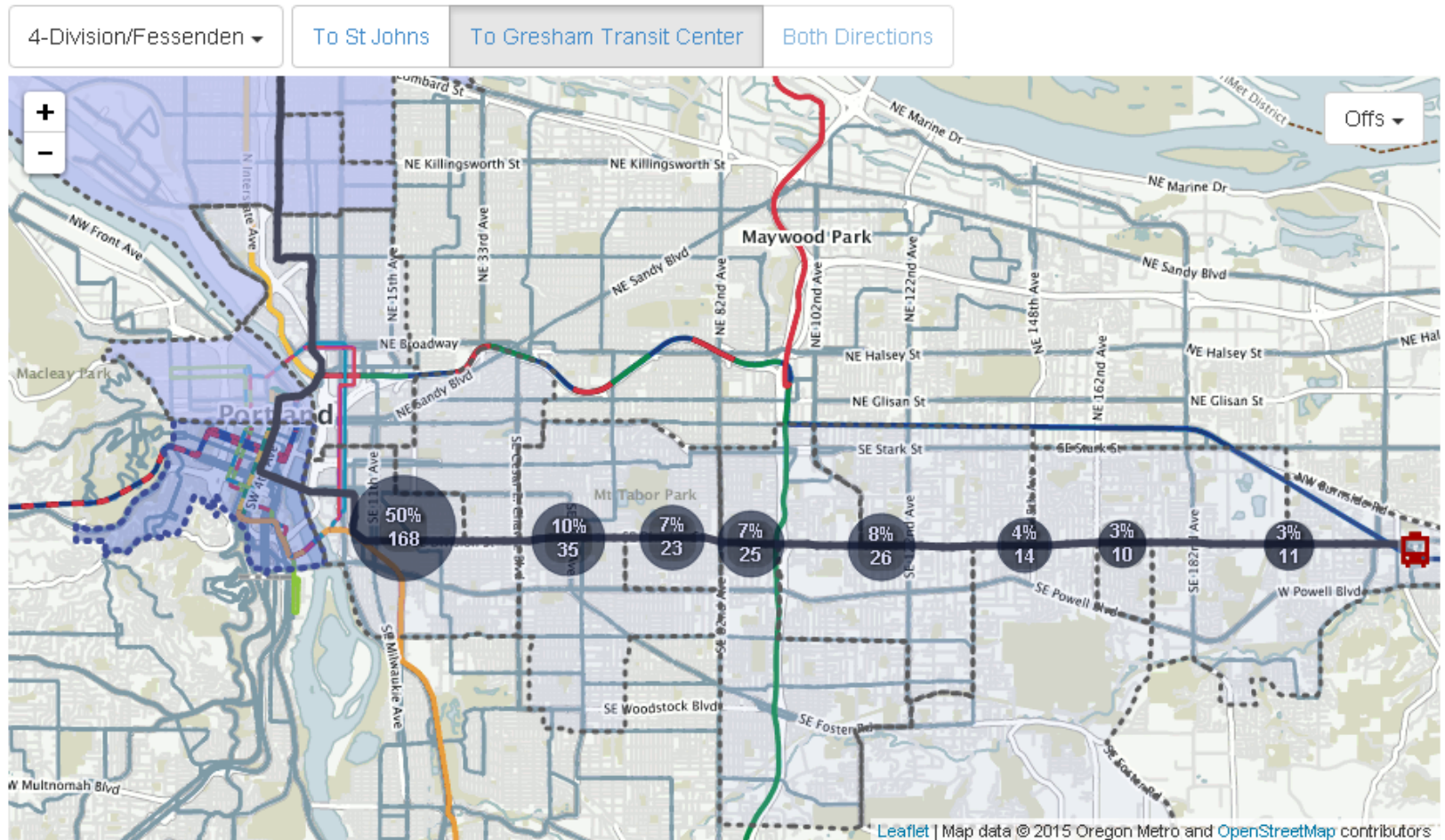
# Dashboard – Quotas by Time of Day

## On-Off Dashboard



# Dashboard – Analytics (un-processed data)

## On-Off Dashboard



# Reiterative Pilot Testing

## Refinement of

- Questionnaire (order, wording...)
- Sampling procedures
- Completion time
- Device and carrier testing
- Software testing

## Data Review and QC Process Development

## Refinement budget, resource requirements, and timeline



Hiring & Training  
Schedule Creation & Signup  
Communication

## SURVEY TEAM



# Recruitment and Training

## Recruitment

- Tech savvy
- Familiarity of TriMet system
- Customer Service skills
- Racial/ethnic diversity and Spanish-speakers
- Professional attitude and appearance
- Solid work history (background check required)

## Training

- Safety and Customer Service Training
- Project introduction, overview, objectives, scope
- Methodology and sampling procedures
- Use of tablets
- Shift sign-up and communication methods





## GIS ELECTRONIC SURVEY TRAINING SCHEDULE

	Day 1 Wednesday Feb. 17, 2016				Day 2 Thursday Feb. 18, 2016			
	Group 1		Group 2		Group 1		Group 2	
<b>8:30am 10:00am</b>	<b>Customer Service/Security</b> Conf CTR (2E) – Mt. Wash.		<b>Tablet Assignment &amp; Setup</b> Conf CTR (1) - Mt. McLoughlin		<b>Supplemental App Review</b> Conf CTR (1) - Mt. McLoughlin		<b>Survey Review/Trip Signups</b> Conf CTR (2E) – Mt. Wash.	
<b>10:30am Noon</b>	<b>Tablet Assignment &amp; Setup</b> Conf CTR (1) - Mt. McLoughlin		<b>Customer Service/Security</b> Conf CTR (2E) – Mt. Wash.		<b>Survey Review/Trip Signups</b> Conf CTR (2E) – Mt. Wash.		<b>Supplemental App Review</b> Conf CTR (1) - Mt. McLoughlin	
<b>Noon 12:45pm</b>	1A Badges	1B Lunch	2A Tablet Practice	2B Lunch	1A Tablet Practice	1B Lunch	2A Badges	2B Lunch
<b>12:45pm 1:30pm</b>	1A Lunch	1B Badges	2A Lunch	2B Tablet Practice	1A Lunch	1B Tablet Practice	2A Lunch	2B Badges
<b>1:30pm 5:00pm</b>	<b>Technical Training/Field</b> Conf CTR (1) - Mt. McLoughlin		<b>Methodology</b> Conf CTR (2E) – Mt. Wash.		<b>Methodology</b> Conf CTR (2E) – Mt. Wash.		<b>Technical Training/Field</b> Conf CTR (1) - Mt. McLoughlin	

Day 3 Friday Feb. 19, 2016	Day 4 Saturday Feb. 20, 2016
Small group training with supervisors in field	Survey Begins


### All Training at:

TriMet Center Street Office  
4012 SE 17th Ave.  
Portland, OR 97202

2/12/2016

### LEGEND

	Ed & Julie
	Brett Lead
	Ginger & Group
	Jeffrey & Grant

	TriMet Tranist Police
	210 NW 1st Ave
	Old Town/Chinatown MAX
	Station



# Fielding Rules

## Scripts:

- Someone asks me for directions or information about TriMet while I am surveying:
- The rider wants to file a complaint with me about TriMet
- The passenger has previously taken the survey on a different trip (we are interviewing riders more than once as you are surveying the trip not the people)

## Contacts:

**Brett if tablet is lost/stolen/damaged/left behind/issues with it.**

Contact your assigned supervisor for all other issues, such as:

- I lost my badge
- The bus driver says I cannot survey on the bus
- I am late for my shift and miss my scheduled bus/train
- I have technical issues while surveying
- I am sick and cannot make my shift
- I am injured or become sick while I am working

## Keep surveying even if:

- I am scheduled to work with a partner and they do not show up
- The vehicle breaks down – get on next bus
- Your shift includes multiple trips and one trip is late, causing me to miss a connection
- Survey Blazer and Timber Games
- Buses with Field Trips and Students

## What if:

- The vehicle is packed and I cannot move around and follow the survey procedures
- I have surveyed all the riders on the vehicle and we have not reached the end of the trip
- Someone wants me enter in the survey questions for them (they are visually impaired, don't want to touch the tablet, are not comfortable with the technology, etc.)
- The passenger is young? Only survey passengers 12 years old and above (don't require parental permission).

## Travel Time


You will be paid for your travel time to your start location.

Use Uber/Lyft only during non-TriMet service hours and give receipts to OLSA.

## Remember to:

1. Charge your tablet after every shift and make sure that it is charged before leaving for a shift.
2. Be at the beginning location 10 minutes before the bus/train is due.
3. Wear your badge and vest while administering surveys.
4. Identify yourself as a TriMet Surveyor to the bus driver (not necessary on the train), stating that you will be conducting surveys on this trip. If requested, show him/her your TriMet badge.
5. Remember to dress neatly and be well-groomed. Jeans and T-shirts are okay, but make sure your clothing is clean

# Equipment Assignments



## TriMet Mobile Surveyor Equipment Checkout Form

Name: \_\_\_\_\_

Department: GIS-IT

Phone #: \_\_\_\_\_

Email Address: \_\_\_\_\_

Equipment Being Checked Out			
Quantity	Equipment	ID Number	User's Initials
1	Samsung Galaxy Tablet		
1	Samsung Wall Charger		
1	Poetic Table Case	N/A	
1	Shoulder Bag	N/A	
1	Blue TriMet Vest	N/A	
1	TriMet Badge Authorization Form	N/A	

Date Equipment Picked Up: 02/17/2016

Date Equipment will be Returned: 06/04/2016

I understand that it is my responsibility to:  
(Please initial besides each item)

\_\_\_\_\_ Accept accountability for the care and use of the above equipment

\_\_\_\_\_ Report any loss or damage of the equipment immediately to your supervisor

\_\_\_\_\_ Return the equipment on time

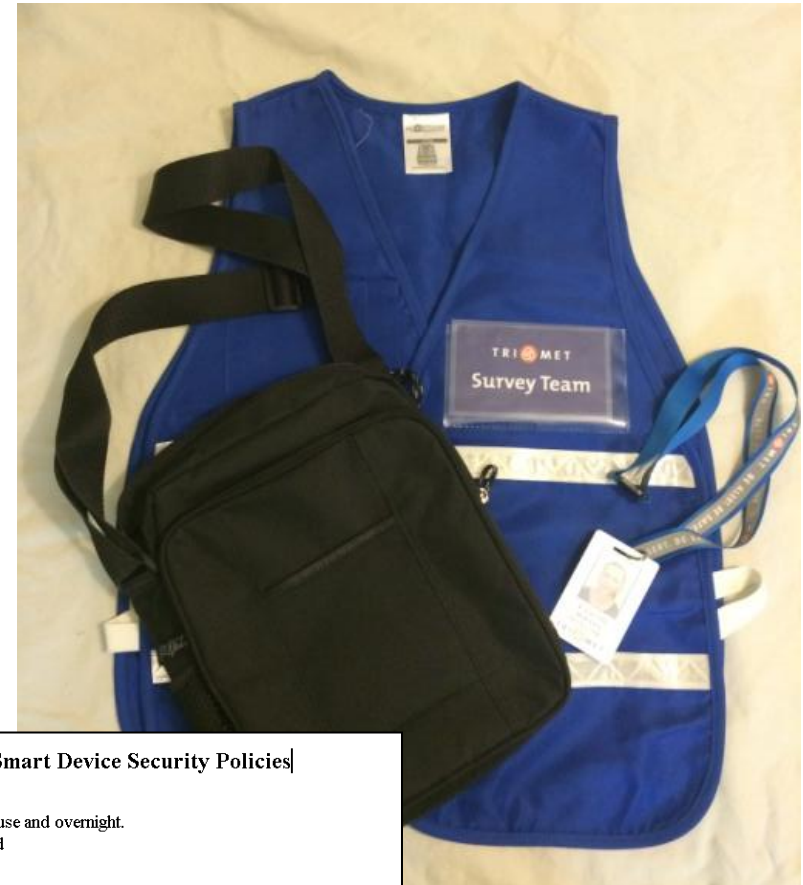
\_\_\_\_\_ Return the equipment cleaned and in the same condition it was received

\_\_\_\_\_  
Signature

-----Office Use Only-----

Approved By: \_\_\_\_\_ Date: \_\_\_\_\_

Date Returned: \_\_\_\_\_ Accepted By: \_\_\_\_\_



## Acceptable Use and Smart Device Security Policies

### Security - In the Office

- Device should be secured when not in use and overnight.
- The device must be password protected

### Security - Out of Office

- Devices must not be left unsecured when traveling (e.g. hotel rooms, during meals, etc.)
- Preferably, devices must not be left unattended in automobiles. If it is necessary to leave the device in an unattended car for a short period of time, the device should be placed in a trunk.
- Put it through the x-ray machine when going through airport security. Keep all equipment in view at all times.

### Safeguarding Sensitive Information

- A password will be set up that must be entered before any user can access contents.
- Additional passwords will be set up on files containing sensitive agency information.
- Passwords should not be shared or revealed to anyone.

### What to do if there is a theft

- If a theft does occur, notify The Helpdesk at (503)-962-5818, immediately.
- Inform your manager of situation.

I have read and agree to the Acceptable Use and Smart Device Security Policies.

# Quality Assurance

One Supervisor per 6-7 Surveyors

Fielding Rules Reviewed and Additional  
Training as Needed

Monitored and Mystery Shopped  
(documenting when/where)

Monitoring of backend data

Timesheet verifications against scheduled  
work shifts and data collection.



*Supervisors have prior survey experience: Cassadi Willey, Brett Hamilton, Meredith Rider*

Your name: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Line/train: \_\_\_\_\_ Bus stop where you boarded: \_\_\_\_\_

Approximate number of occupied seats when boarding:

☐ <25% ☐ 25% ☐ 50% ☐ 75% ☐ 100% ☐ >100% (people standing)

**DIRECTIONS:** Try to sit close to the surveyor so you can observe their actions and behaviors. Ride the bus for about 15 to 30 minutes. The answers in bold are the actions/behaviors we want. Check only one box for each question.

### APPROACH

- Which of the following?
  - ☐ Please fill out
  - ☐ Would you like
  - ☐ Tri-Met survey
  - ☐ Fill this out
  - ☐ Here, take this
  - ☐ Other: \_\_\_\_\_
- Did he/she speak clearly?
  - ☐ Yes ☐ No
- Did they smile when approaching?
  - ☐ Yes ☐ No
- Did they make eye contact?
  - ☐ Yes ☐ No
- Were you given instructions?
  - ☐ Yes ☐ No
- Did the surveyor approach you?
  - ☐ Yes ☐ No
- How would you rate their approach?
  - ☐ Excellent ☐ Fair ☐ Poor
- Any comments about their approach?

How would you rate their approach? (47 responses)



Any comments about their approach? (22 responses)

Kamron was friendly when approaching riders and he made sure to talk to everyone on the bus.

Kamron was friendly when approaching riders and he made sure to talk to everyone on the bus.

He was very friendly and seemed comfortable approaching the passengers.

She was very friendly when approaching riders

Got 4 out 4 people to take the survey will approach

### DRESS / APPEARANCE

- Was the surveyor wearing an identification badge?
  - ☐ Yes ☐ No
- Were their clothes clean?
  - ☐ Yes ☐ No
- Were their clothes respectable (not torn, no objectionable words on t-shirts, etc.)?
  - ☐ Yes ☐ No
- Did they have good personal hygiene?
  - ☐ Yes ☐ No

## Field Supervision Form

### Individual and Total Summary Results

### Average Shift Supervision Rate %16

How would you rate their dress/appearance?

☐ Fair ☐ Poor

How would you rate their dress/appearance?

Did any passengers ask for instructions or clarification?

→ skip to question 16

Did you have to answer the questions?

Did anyone speak Spanish to the surveyor?

→ skip to question 17

Did you give them the Spanish version of the survey?

Did they say thank you when receiving the tablet back?

How would you rate their follow-through?

☐ Fair ☐ Poor

How would you rate their follow-through?

Did you see anyone eating/drinking on the bus (not including water)?

Did you see the surveyor interacting with the Operator?

→ skip to question 30

21a. Was the interaction of a positive nature?

☐ Yes ☐ No → explain:

22. Did you witness the surveyor using their personal cell phone while surveying on the bus/MAX/WES?

☐ Yes ☐ No

23. Does this person contribute to the overall image Tri-Met would like to portray?

☐ Yes ☐ No

**COMMENTS** (optional)

# On-Line Shift Scheduling (WhenIWork.com)

EVERYTHING PUBLISHED  
NO CHANGES

SHIFT POSITION

Line 4 to GTC

Positions ? ALL +

- ☒ No Position
- ☒ On/Off Surveyor
- ☒ Intercept Surveyor

Nov 30 - Dec 6, 2015

STAFF	MON 30	TUE 1
OpenShifts <span>?</span>		
Andrew Hickey <span>?</span> 0/16.97/40	4:53p - 9:33p 9:57p - 12:00a	(12p - 5:03p) 8:02a - 1:12p
Bibiana McHugh 0/0/40		
Brett Hamilton <span>?</span> 0/16.88/40	4:53p - 9:33p	4:06p - 9:14p
Grant Humphries 0/0/40		
Heather Bree <span>✓</span> 0/28.77/40	4:53p - 9:33p	12:02p - 4:4p 5:54a - 10:51a
Jeffrey Meyers 0/4.77/40		12:02p - 4:4p
Joe Recker 0/0/40		
Meredith Rider <span>✓</span> 0/0.45/40	9:57p - 12:00a	6:03p - 8:28p

18.17 9.34 7.22 24.97 20.52 0 0

https://app.wheniwork.com/scheduler#

4:53p - 9:33p | as On/Off Surveyor | Board Line 4 to GTC @ 4:53pm at NW Glisan & 3rd. Ride to GTC, arriving 6:06pm. Board Line 4 to Fessenden @ 6:12 at GTC. Ride to NW Everett & 2nd, arriving 7:17pm. Board Line 4 to GTC @ 7:25pm at NW Glisan & 3rd. Ride to GTC, arriving 8:27pm. Board Line 4 to Fessenden @ 8:35pm at GTC. Ride to NW Everett & 2nd, arriving 9:33pm.



## Travel Alternatives (6pm-6am shifts as needed)



Fare Survey Comparisons	2012	2016
Distribution	Paper and pencil – handed to all passengers	Tablets – survey as many as possible
Languages	Full survey: English/Spanish LEP questions: 4 languages	Full survey: English/Spanish LEP questions: 11 languages
Questions asked (full survey)	19	24

Sample Trips: representative of service day	Bus – 8% weekday, 5% Sunday MAX – 15% weekday, 10% Sunday WES – 50% weekday Portland Streetcar – 1% Saturday, Sunday	Surveyor hours (includes training/travel)	1,735	2,309
		Surveyor training hours	15	276
		Supervisor/scheduler hours	711	1,082
		Completed surveys (includes all languages)	16,982	17,719
Sample hours pulled (includes 2 surveyors on MAX)	1,506	Response rate	44%	65%
		Results available after fielding	>6 months	1 month
		Shift length – average surveying hours (not including travel time)	8 hours	4 to 5 hours to accommodate student schedules
		Cost	\$107,502 (fielding, translations, printing, postage, data entry)	\$73,313 (fielding, translations, programming, cell phone and incidental fees)
		Cost per sample hour	\$71.40	\$48.40
		Cost per completed survey	\$6.30	\$4.10
		Completes per sample hour	11.3	11.7
		Supervisor/scheduler hours as % of sample hours	47%	71%

## CONCLUSIONS

# Comparisons between 2012 and 2016 Fare Surveys

Cost decrease by 32%, response rate increase by 48%

Obtained more information, more timely, with better quality assurance

Introduced dashboards and real-time data monitoring

Training and supervision more rigorous

Fewer errors and higher % of completes

Allowed for shorter shifts to accommodate student schedules (produced more travel time, however, the surveyors experienced less burnout)

More environmentally friendly than paper

Enabled TriMet “ambassadors” (students) to interact directly with 27,118 riders and 203 bus drivers/WES conductors.

## Tablet vs. Paper

Significant time and cost savings: eliminates paper, printing, postage, data entry, GIS post-processing.

No oversampling required to meet quota, as real-time data capture is monitored.

Data entry errors are decreased and can be auto-validated

Data accuracy is vastly improved and location information for stops on/off is auto-captured. Survey throw-out rate is almost non-existent.

Demonstrates the use of innovation in technology and being environmentally conscientious.

## College Students

Hourly cost of college students are 40% less than consultant and provides opportunities for local area students.

Positive customer interaction and engagement

Have extensive knowledge of the transit system and local area.

Bi-lingual recruitment

Staff on hand for customer service projects in addition to surveys

# 2009 & 2012 Fare Surveys

## TriMet Rider Survey

Please fill out this form even if you have already reached one on another bus or train.

Over Riders TriMet would like to know about the trip you are currently making. Please answer the following questions and return to the conductor or drop it in the mail.

### TriMet Rider Survey

Please fill out this form even if you have already reached one on another bus or train.

Over Riders TriMet would like to know about the trip you are currently making. Please answer the following questions and return to the conductor or drop it in the mail.

1. What are you going to school for? \_\_\_\_\_

2. Do you have a transfer from a different line to make this trip? \_\_\_\_\_

3. If you need transfer to make this trip, what line do you transfer to? \_\_\_\_\_

4. How do you pay your fare for this trip? \_\_\_\_\_

5. Which ticket type best describes your trip? \_\_\_\_\_

6. Is your trip for payment being used for a one-way or a round trip? \_\_\_\_\_

7. If you are using a Trip Plan, how many one-way trips will you make in a month? \_\_\_\_\_

8. Where did you go for this trip? \_\_\_\_\_

9. Do you have a transfer from a different line to make this trip? \_\_\_\_\_

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### Encuesta a los pasajeros de TriMet

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