



# GTFS Builder Step 1

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June 13, 2013



U.S. Department of Transportation  
Federal Transit Administration

# What Does National RTAP Offer for You?

- Comprehensive offering of FREE resources
  - Help you do your job better and manage costs
  - Supplement State RTAP programs
  - Especially important when budgets are tight
- One-stop shopping for technical assistance products and services
  - If we can't help with your request, we'll connect you with someone who can
- Commitment to innovation
  - Forward-thinking products and technology initiatives to address rural transit challenges
  - You don't have to be a tech expert – know-how and support are provided!
- [www.nationalrtap.org](http://www.nationalrtap.org)

# Agenda

- Step 1 – GTFS Builder
  - Presenter - Marcy Jaffe
    - Launched the first intercity, rural bus carrier at Google Transit in 2007
  - Topics covered today can be viewed at Dashboard and select Support Center
- Questions

# Jump in



- Webinar Steps 1-2-3 build one route in GTFS
- Steps one & two suggest half-hour of homework
- Or grab the Excel Workbook tools, specs, hosting and you can take it from here
- National RTAP is ready to support you to build your General Transit Feed Specification (GTFS)

# Pre-flight – grab the O<sub>2</sub>

- Agrees to License terms
- Will collect / has data & willing to maintain
- Excel (1997 or more recent)
- Agree to macros in Excel
- Google Earth – in open GL mode
- Browser options



# What I need to start?

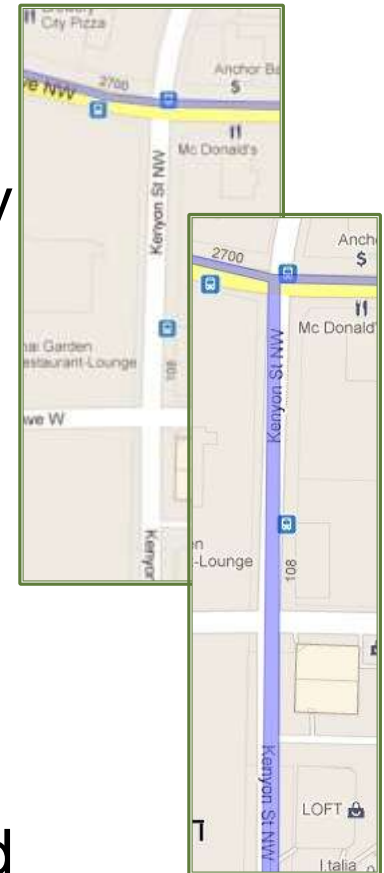


- tools / workbooks = Agency needs Excel
- Account at National RTAP
- Re-use data your agency manages
- Bus stop locations = geocoding
- Time = 2 - 4 hours per route, one-time set-up
  - Maintenance 1-10 hours / year



# GTFS Builder Concepts & Terms

- **Stop** locations (geocoding)
- Group **Trips** by *pattern* or a journey taken by a vehicle through *Stops*
- Trips assign the **service\_id** (weekday/Sat, etc.) & the range in dates (summer/school)
- Build **routes** or “line” from one or more trips; is time independent
- **Shapes** (optional) displays route on the road



# Learning Tools/Resources & Dashboard

- GTFS Builder Task Wheel
- Trip Plan that connects data to Excel Workbooks
- National RTAP Dashboard



# National RTAP in the Cloud

Welcome **Marcy Jaffe** (Logout)  
National RTAP (Federal)

**Web Apps**

- GTFS Builder

**GTFS Builder** Download

Upload your Validated Transit Zip file

Support Center

Forum

**Quick Tip**  
This is the dashboard page for the GTFS Builder. You can download the GTFS Builder, upload your Transit.zip file and access the Support Center.

Help Video

GTFS Builder tools  
(Excel Workbooks)

Upload for National RTAP to host your validated GTFS google\_transit.zip file

**Related Links**

< Select Link >

- < Select Link >
- ON-LINE GEOCODING TOOL
- GTFS SPECIFICATIONS
- TRANSIT PARTNER HELP
- SIGN-UP
- PARTNER DASH (when logged-in)
- BEST PRACTICES & FAQS
- HEX COLOR PICKER
- CALENDAR\_DATES
- FEED VALIDATOR
- SCHEDULE VIEWER

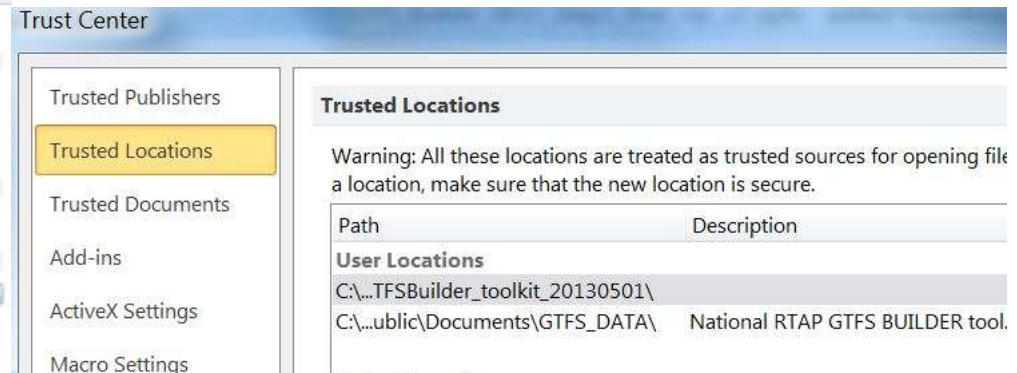
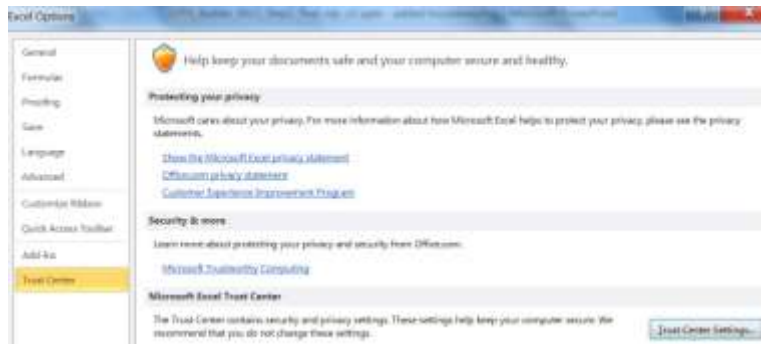
Google Validation Tools include:  
Location editor

# Two Excel GTFS Builder Workbooks

- Schedules\_V2: manages/generates stop\_times and trips
- Import/Export: with above, manages all GTFS data
- Why two spreadsheet workbooks?

# Macros

- Excel is open
- File > Options > Trust Center > Macros > Macro Settings



# Associated GTFS Data from a Trip Plan

arrival\_time, departure\_time

service\_id, trip\_id, direction\_id

route\_type (3=bus), route\_short\_name, route\_color, route\_text\_color

stop\_name, stop\_lat, stop\_lon

fare\_attributes, fare\_rules

agency\_name, agency\_url, agency\_fare\_url, agency\_phone

stop\_headsign

trip\_headsign

shades

Feed\_version (only visible when logged-in at your agency Google "preview" account)

Data correlates with tab

Sample data: Courtesy Google Maps

National RTAP Rural Transit Assistance Program

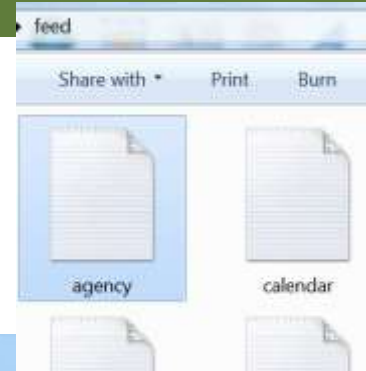
FTA United States Department of Transportation Federal Transit Administration

# GTFS Specification Reference

- Never memorized
- Always backwards compatible
- Find specs:
  - ❑ NationalRTAP.org GTFS Builder Dashboard – RELATED LINKS
  - ❑ <https://developers.google.com/transit/gtfs/reference>
  - ❑ Excel Notes tab in Import/Export

# Data Output

- Peek at Comma Separated Value (CSV), text files



```
agency - Notepad
File Edit Format View Help
agency_id,agency_name,agency_url,agency_phone,agency_timezone,agen
Mason,Mason Transit,http://www.masontransit.org,(800) 281-9434,Amei
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	A	B	C	D	E	F
1	agency_id	agency_name	agency_url	agency_phone	agency_timezone	agency_lang
2	Mason	Mason Transit	http://www.masontransit.org	(800) 281-9434	America/Los_Angeles	en
3						
4						
5						

Notes **agency** calendar calendar\_dates fare\_attributes fare\_rules frequencies routes shapes s



# Map & Route Display: Output "Shapes" Optional

- To keep simple: no “shapes”
- What are “shapes”?
- Additional Articles offers how to create and manage shapes
- Extreme precision for display of routes and trip patterns that share a transit center, mall, etc.

# Why Bus Stops First? Flag Stops?

- Helps riders know where to wait for the bus
- More precise than “Fourth & Main”
- If you cannot collect bus stops – you cannot proceed



# Flag Stops

- Cannot specify “anywhere along this stretch”
- Suggest you can add stops along the trip that are safer locations – riders can learn about flag stops once they find a nearby stop

# Bus Stop Location Data May Be Found Here

- scheduling software for paratransit or transit ops
- transit development plan (TDP)
- transit planning studies
- inventory of assets including bus stop shelters, poles, etc.
- regional or city planning, modeling or reporting;
- Automated Vehicle Locator (AVL), Mobile Data Terminal (MDT);
- invite webinar participants to suggest other resources

# Methods to Gather or Tune-up Bus Stops

- iPhone/Smartphone = ride the route, gather the shape route along the road & “click” each stop as “waypoint”
- Other GPS device that captures waypoints
- Geocode addresses with Google Fusion table or other batch geocoder
- On-line: <http://www.gpsvisualizer.com/geocoding.html>
- Do not recommend Google Earth for geocoding

# Step 1: Assignment = Bus Stops

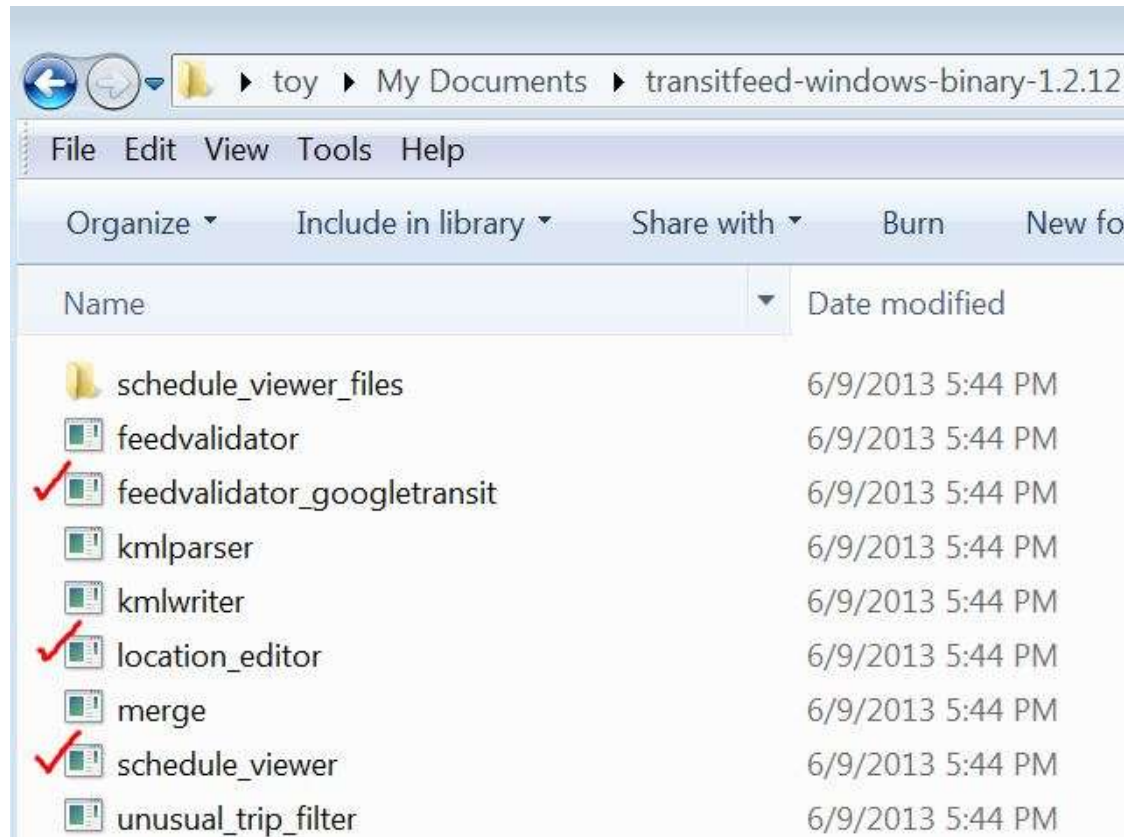
- Collect/organize bus stop locations for one (short) route
  - stop\_id (*internal*)
  - stop\_code (*optional, public sees this*)
  - stop\_name (*must be identical to website, use M.S.U. vs. MSU*)
  - stop\_lat (*latitude*)
  - stop\_lon (*longitude*)
- Enter in Import/Export workbook, **stops** tab

# Step 1: Assignment = Set-up Computer Workspace

- GTFS Builder (downloaded) Excel workbooks
- Google Validation tools (Feed Validator)
- Store/manage archived files to be assured you are working with newest version
- Folder for “latest” uploaded file
- Enable Macros (1.5)

# Step 1: Assignment = Google Validation Tools (Overview)

- Become familiar with Feed Validator



# No-cost Google License sample agreement

- Sample agreement @ National RTAP Dashboard
- Some agencies need extra time to review
- If it is unlikely your agency can accept the terms, you might put GTFS Builder on-hold
- Agreement is emailed to appropriate party; Email often lost in spam.

# Managing Expectations

- <http://support.google.com/mapcontentpartners/answer/146442?hl=en>
- **“Do not communicate publicly about launch plans.”**



# No Cost Hosting from National RTAP

- GTFS Builder Dashboard allows you to have a secure, stable link where Google can retrieve the zipped CSV file



- More on this in Simple Step 3

# Features Omitted in Simple Steps 1-2-3

- Fares: Google Transit displays adult, one-way fare
- Shapes: “Map Optional” displays bus route on the road
- Transfers: default behavior is 5 min.
- Block\_id: knits the bus operator trips through the day;
- Merge: current and future schedules
- Real-time GPS and real-time alerts
- Generate a schedule output is forthcoming GTFS Builder feature when using Website Builder

# Preview Step 2

- Scan Schedules V2 workbook

# Contact Information

[www.nationalrtap.org](http://www.nationalrtap.org)

GTFS Builder Dashboard

888-589-6821

[support@nationalrtap.org](mailto:support@nationalrtap.org)

