Point A to B

Implementing and maintaining Google Transit for rural transit agencies

- Data gathering challenges
- Google Transit feed publishing software
- Special rural needs for trip planners
• What is Google Transit?
• Why?
• How to participate?
• Limitations for rural providers
• Making the most of Google Transit
QuickTime™ and a H.264 decompressor are needed to see this picture.
What is it?

**Why Google Transit?**

Participating

Making the most of Google Transit

- Conventional transit schedules and maps are unfamiliar/hard-to-use
- Google Transit is a familiar format for public transportation information
- Most Americans on the web
- Plans inter-agency itineraries
- Shows transit as an alternative to driving
  Interface in 12 different languages
  Available on mobile devices like iPhones and Blackberries
Let’s take a trip…

**Step 1**
(destination)

**Step 2**
(my house)

**Step 3**
(transfer point)

**Step 4**
(destination timing point)

**Step 5**
(transfer timing point)

**Step 6**
(transfer timing point)

**Step 7**
(origination)
Almost half of participants were unable to correctly identify bus times using the tabular schedules.

Design Elements of Effective Transit Information Materials,
National Center for Transit Research at the University of South Florida
(http://www.nctr.usf.edu/pdf/527-12.pdf)
Why Google Transit? Google Transit provides a familiar format for public transportation information.

The third most common internet activity for Americans is to “search for a map or driving directions,” (87%) behind only email and using search engines.

Source: Pew Internet & American Life Project, (http://www.pewinternet.org/pdfs/PIP_Internet_and_Daily_Life.pdf)
Most Americans are on the web

• 73% of all Americans are internet users
• 63% of people in rural areas
• 53% of < $30k/year income households
• 71% of 50-64 year olds
• 88% of 18-29 year olds

Source: Pew Internet & American Life Project,
(http://www.pewinternet.org/pdfs/PIP_Internet_and_Daily_Life.pdf)
Why Google Transit?
Inter-agency trip planning

Transit directions to Crescent City, CA
Eureka, CA

$23.90 (vs. $49.74 driving!)
Showing Trip 1  Travel time: about 3 hours 51 mins
Walk to H & Huntoon About 1 min

Bus - Purple Route - Direction: H & 3rd
Service run by Eureka Transit Service - (707) 443-0826
3:40pm Depart H & Huntoon
12 mins
3:52pm Arrive 6th & O

Bus - Mainline - Direction: Northbound: Valley West
Service run by Redwood Transit System - (707) 443-0826
4:24pm Depart 5th & O Streets, Eureka
14 mins
4:38pm Arrive Arcata Transit Center

Bus - 20 - Smith River / Arcata - Direction: Northbound: Smith River
37 mins to make transfer
Service run by Redwood Coast Transit - 707-464-6400
5:15pm Depart Arcata Transit Center 2 hours 8 mins
7:23pm Arrive Ray's Food Place Route Information - redwoodcoasttransit.org

Walk to Crescent City, CA About 7 mins

Transit directions to Tillamook, OR
Portland (city)

Red Lion Hotel on the River - Jantzen Beach
909 N Hayventhi Island Drive
Portland, OR 97217

Showing Trip 1  Travel time: about 3 hours 10 mins
Walk to N Tomahawk & Jantzen Dr About 3 mins

Bus - 6 - Martin Luther King Jr Blvd - Direction: Jantzen Beach
Service run by TriMet - 503-238-7433
1:56pm Depart N Tomahawk & Jantzen Dr (Stop ID: 11819)
2 mins
1:58pm Arrive Jantzen Beach Main Stop/ In (Stop ID: 3029)
Route Information - trimet.org

Continues as 6 - Martin Luther King Jr Blvd (stay on board) - Direction: Portland
1:58pm Depart Jantzen Beach Main Stop/ In (Stop ID: 3029)
51 mins
2:49pm Arrive NE M L King & Wasco (Stop ID: 5658)
Route Information - trimet.org

Bus - 77 - Broadway/Halsey - Direction: Montgomery Park
13 mins to make transfer
3:02pm Depart NE Multnomah & Grand (Stop ID: 4043)
7 mins
3:09pm Arrive NW Station Way & Union Station (Stop ID: 12801)
Route Information - trimet.org

Bus - 5 - Tillamook - Portland - Direction: 2nd & Laurel
6 mins to make transfer
Service run by Tillamook County Transportation District - 503-815-TCTD (8283)
3:15pm Depart Union Station, Portland 1 hour 45 mins
5:00pm Arrive 2nd & Laurel

Walk to Tillamook, OR About 4 mins

Transit directions to Eureka, CA
Eureka (city)

Transit directions to Humboldt County
Del Norte County

Transit directions to Tillamook County
Why Google Transit?

Shows transit as an alternative to driving

Travelers who will otherwise never think of transit or visit your website will see the transit option
Why Google Transit? Interface in twelve languages

Twitter status messages:
• “I’m thinking of catching my 1st ever bus since iPhone 2.2 got released! It even tells you the bus timetable!” @timjennion
• Took a bus for the first time in over a year. The new public transport option in maps on the iPhone is brilliant!” @helloBos
What is it?

Why Google Transit?

Participating

Making the most of Google Transit

Agency experiences

Duluth Transit Authority
12% ridership increase w/ Google Transit as part of marketing package

Redwood Transit System
Google Transit + high gas prices + university bus pass = 30% year-over-year ridership increase

General Manager says “passengers love it.”

Hampton Roads Transit
“Google effect” – Google’s image has helped to improve public perception
What is it?

Why Google Transit?

Participating

Making the most of Google Transit

Google welcomes participation from any fixed-route agency.

Participation is free.

However, agencies need to provide valid schedule data in the Google Transit Feed Specification (GTFS).

Agencies must agree to the Google Transit Agreement.
- 50 IT staff
- Mountains of data in enterprise SQL database
- ~700 buses

≠

- 0 IT staff
- Schedules are Excel spreadsheets
- ~14 buses
Participating NextInsight transportation software offers web-based GTFS publishing tool.
Bob Heitzman’s free Microsoft Excel tools require comfortability with advanced Excel features.
Participating Trillium’s WebSchedule is one available tool to publish and maintain Google Transit Feed information.
Web-based software benefits

• No software to install or manage
• Software updates happen automatically
• Software is updated to take advantage of changes and additions to the Google Transit Feed Specification
• Support technician can see the same data and view as the user

Login
Your browser must allow cookies in order to log in.

Email Address: aaron@arcatacommunity.org
Password: ********

Login
Google Transit shows walking directions or walking leg if transit trip duration is greater.

Example: TRAX Route 1

Walking instead of transit
Present limitations of Google Transit for rural providers

Walking instead of transit
Present limitations of Google Transit for rural providers

If no transit service is available within 48 hours of the desired departure/arrival time, Google Transit will return a null result. This is not optimal for rural stage or intercity service which may only operate a one or a few times per week.

Depart at 08/23/09 at 9:30pm
Present limitations of Google Transit for rural providers

48 hour query window
Present limitations of Google Transit for rural providers

48 hour query window

same query for one day later:
Present limitations of Google Transit for rural providers

No service available message contains little useful information:

```
Sorry, we don't have transit schedule data for a trip from Redding, CA to Susanville, CA at the time and date you specified.

Get driving directions from Redding, CA to Susanville, CA.
```
Present limitations of Google Transit for rural providers

No service available message

A suggested, more thorough approach:

Sorry, we don't have transit schedule data for a trip from Redding, CA to Susanville, CA at the time and date you specified.

The Google Maps trip planner currently includes service schedules for these agencies in this area:

- Redding Area Bus Authority (website link), (530) 241-2877
- Sage Stage (website link), 530-233-6410
- Plumas Transit (website link), 530-283-2538

You can also try:

- Search businesses and organizations for "Transportation" in this area (http://maps.google.com/maps?f=q&source=s_q&hl=en&geocode=&q=transport)
- Get driving directions from Redding, CA to Susanville, CA.
Present limitations of Google Transit for rural providers

Demand-response style services are difficult/impossible to represent

- Deviated fixed route / flex routes are not possible to include in Google Transit
- Google Transit does not show flags such as “must phone agency” or “must coordinate with driver” in trip planner for demand-response style service.
**Present limitations of Google Transit for rural providers**

Maximum walking distance limitation

4 miles is the maximum walking distance for the Google Transit trip planner. In rural areas, **travelers walk or drive farther** than 4 miles to access transit.

**Figure:** Weaverville, CA as a location in Google Maps is actually more than 4 miles from the nearest transit stop location.
Present limitations of Google Transit for rural providers

Solutions

1. Participate in Google Transit community through Google Transit Support Group and GTFS changes group

Welcome to the Google Transit Partner Support Discussion Group!

A private community where public transportation agencies, operators, and other data providers working with Google can ask questions and exchange knowledge about how to best structure their data. If you’d like to find out just what Google Help groups are and how they work, please check out our group charter and the quick start guide.

Google employees, known as “Google Transit Guides,” will be popping in from time to time to post announcements, share tips, and answer questions.

When reporting a problem with a feed please provide the URL of your feed so that other people can take a look and help you. If you don’t have a website you can use a file upload site. It is helpful to include your agency id (often city-region-countrycode, ie portland-or-us) too.

Before getting started, have you checked:
Google Transit Partner FAQs? | Google Transit Feed Specifications? | Google Transit Best Practices?

Tips and Tricks
Useful hints and recipes for implementing some features on Google Transit. Please check our FAQs before posting.

Announcements
For the latest news or tips on using Google Transit, straight from the Google Transit team. Please also check our Google Earth and Maps Team Blog.

Troubleshooting
For help resolving technical or feed issues with Google Transit. Note: the best way to report a bug or problem is by filling out this form. Please also check our Known Issues page before posting.

Feature Requests and Suggestions
For discussion on new features and ideas for the future of Google Transit.

2. Alternatives exist and are being developed: an open-source multi-modal trip planner for example
Making the most of Google Transit Agency website can include trip planner form
Making the most of Google Transit

Choose an easy-to-remember web-address to include on vehicles, schedules, signs, press releases, and outgoing off-hours voicemail greeting.

`ci.yourcity.ca.us/depts/transit/index.aspx?page=main` is not easy-to-remember!
Making the most of Google Transit

Use Google Transit as a tool to make transit a more readily available option when someone is planning a trip.

Example: CalACT conference webpage
Making the most of Google Transit

Use Google Transit as a tool to make transit a more readily available option when someone is planning a trip.

Example: CalACT conference webpage
Transit instructions on the Northcoast Journal event calendar: to reach new audiences and improve off-peak ridership.

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Making the most of Google Transit

Leverage your investment:
Take advantage of other uses for Google Transit feed data

**GTFS: Google Transit Feed Specification**

- A lightweight standard format for transit schedule, fare, stop location, and service calendar data
- Open license for the standard (not owned by Google)
- In 3 years, has become the most commonly-used format for transit data: +115 North American agencies, many European and Asian agencies
Making the most of Google Transit

Public data makes a world-wide community of developers your R&D lab

Over 20 agencies provide their GTFS data on the public feeds page

http://code.google.com/p/googletransitdatafeed/wiki/PublicFeeds
Making the most of Google Transit

Leverage your investment:
Take advantage of other uses for Google Transit feed data

Sendero GPS:
GTFS can be used to create transit point of interest libraries for sight-impaired people to use with talking GPS
Making the most of Google Transit
Leverage your investment:
Take advantage of other uses for Google Transit feed data

TimeTable Publisher: takes what was a multi-day process of proofreading schedules into a few hour long process of automatically outputting schedules (see timetablepublisher.org).
# 108-H Line

## Weekday

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Making the most of Google Transit

Mashup with other geographic information

Example: UC Berkeley Bear Transit shuttle routes with parking lots and bike parking
Making the most of Google Transit

Leverage your investment:
Software that uses Google Transit feed information in multi-modal trip planning

Extensible Applications

3rd party applications designed to consume GTFS

Multi-modal trip planning
Show all relevant options – including public transit, private employer shuttles, carpool, vanpool, biking, walking – through a single map
Show interagency transfers
Multi-Modal Planning

Patagonia - Ventura

Show all relevant options; 7 carpool, 3 transit
Inter-service Transfers

Genentech – South San Francisco

Transfer from BART to private employer shuttle
Making the most of Google Transit
Leverage your investment: Take advantage of other uses for Google Transit feed data

Walkscore.com “Transit shed” map uses open GTFS
Making the most of Google Transit

Other ideas & strategies to get the most out of Google Transit

• Use a Google Transit launch to **get media attention** for your transit agency.

• **Create a page** on your agency website with basic use instructions for Google Transit and links to frequent trips.

• **Educate social service providers** and other partners on how to use Google Transit.

• **Collect rider feedback** to improve the trip planner.
For more information

Google Transit partner program
maps.google.com/help/maps/transit/partners

Google Transit Feed Specification
code.google.com/transit/spec/transit_feedSpecification.html

Trillium Solutions
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www.trilliumtransit.com/blog

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