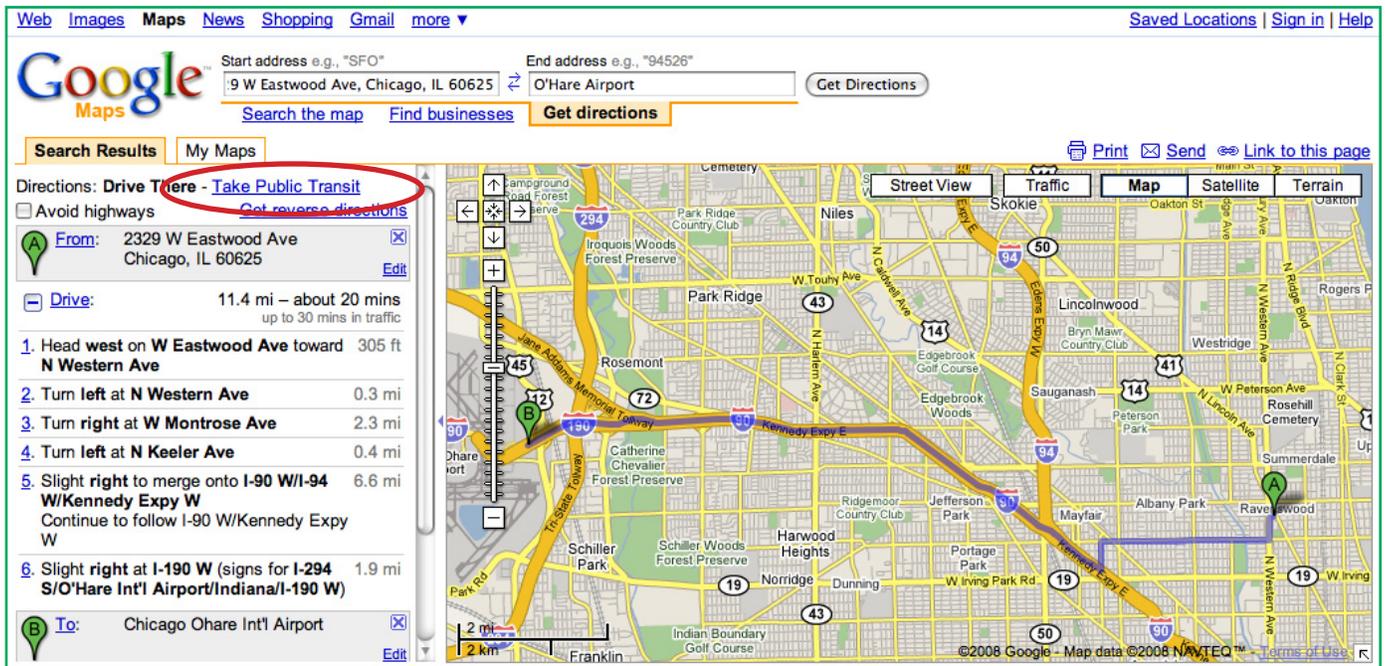


# Googling the Future

Google Transit changes the way riders find their routes and alters the ways they think about public transportation.



Google Maps has always been great for driving directions, but now, it offers transit information in several cities. Google Transit is live in Chicago, Portland, and several other cities around the world.

Google changes everything it touches. Transit is no exception.

For a few years, Google has been reaching out to agencies in order to get more transit data. The service is now fully integrated with Google Maps in many areas.

Although it is not a real time system, an agency can update their data as frequently as they like without any costs other than time.

The task can be intimidating for some small and mid-sized agencies with little Internet experience. However, the pay-off can be tremendous. Duluth

attributed more than 12-percent transit growth directly to Google Transit. Google Transit is not a substitute for an in-house trip planning system. Instead, it acts as an ambassador to the thousands of people who are unaware how they could use transit.

Every time someone searches for a map in a Google Transit city, bus and rail stops are shown on that map. And when a Google user tries to map a trip, Google Transit can provide any available transit alternative to driving.

In this interview, More Riders Publisher Dan Johnson-Weinberger talks with Google Transit New Business Development Manager Tom Sly, Google

spokesperson Elaine Fidadelfo, and transportation communications consultant Aaron Antrim about how they have made Google Transit work.

**Dan Johnson-Weinberger:** Could you talk some about the eight-week turnaround or twelve-week turnaround time that you've suggested? Tell me about what that eight-week turnaround time might look like to an agency that says, "Well I'd like to do this, but now what do we do?"

**Sly:** It's very tough to make a [time] guarantee, because there are so many things that are outside of our control. In most cases, once we receive a valid feed with all the information, we can build a preview in about a week.

If the preview checks out and everything looks as it should – bus stops are in the right location and trips are working as expected – it's a matter of agreeing with the agency to push the data out to production and launch it.

We think it's realistic for an agency to be live

**“We think it's realistic for an agency to be live in a matter of weeks, if their schedule and stop information is in a machine-readable format, if it's in a database of some kind.”**

in a matter of weeks, if their schedule and stop information is in a machine-readable format, meaning, it's in a database or spreadsheet of some kind.

A lot of times, what will happen is someone will see us at a conference and say, "That's great, I'm on board, now what do I need to do?" And we'll send them the Google Transit Feed Spec documentation, and we'll never hear from them again. If you're not a technical person, the Feed Specification can be a bit intimidating at first glance.

So an eight-week turnaround time that I suggested is something that I feel comfortable saying, if someone comes to us and delivers a feed that is valid. We would certainly be able to turn it around and get things up and running in a matter of weeks.

If they're just getting started and learning about geo-coding and learning about gathering this information for the first time, the process can take much longer.

That's why I'm so excited about what Trillium and NextInsight do; they've identified a niche that is underserved, and that is the small to mid-sized agencies that do not have in house technical expertise that can set up a Google Transit feed. Hopefully some other entrepreneurs will see an opportunity to add some value here.

**DJW:** That makes sense.

**Sly:** When a larger agency approaches us, the process is a bit more predictable. Larger agencies usually use one of a handful of systems for scheduling and planning. Over the last year, three of the top scheduling software vendors have agreed to help make it easy for customers to export their data in GTFS format.

This unofficial endorsement of GTFS by some of the major vendors has been really, really significant in terms of the level of interest, because it's made it a matter of pressing a button to export data out of an existing system.

Every agency has its own nuanced way of storing data. There's one agency we're working with that stores a zip code as part of every stop name. For internal purposes, that's not a problem. But when you think about taking that field and using it to put

hundreds of icons on Google's map where users have no idea what those five digits are, it's a problem.

So, we've found that even with these export to GTFS interfaces, we have to do a bit of custom work with each agency to get things right.

## Transit Integration

**DJW:** Do you find that technical people tend to get it the fastest, or the GM's get it, or the communications people get it? Are you finding any trends or themes on the types of agency leaders that are embracing Google Transit?

**Sly:** Across the industry, the important and encouraging thing we're seeing is that more people are getting it, regardless of what position they hold within the agency.

When we launched the product back in 2005, people wondered, "Is Google really serious about

**"I think there's kind of a chain reaction when an agency in Texas goes live with us. We notice the interest in the nearby towns, the other big cities in Texas. They get excited too, and they say, 'Well why aren't we doing this as well?'"**

this? It says 'Labs' so does that mean this is just an experiment? What is Google really aiming to do here?" And I can understand the early skepticism because we didn't do a lot of formal outreach back then.

Over the last year and a half, we've been much more proactive in terms of reaching out to agencies and telling our story. Over the same time period, our product has matured significantly from its original form.

Google Transit began as a Google Labs product, completely separate from Google Maps. Today, Transit is a fully integrated feature of Google Maps that users can discover much more easily than going specifically into [google.com/transit](http://google.com/transit).

Over time it's become increasingly apparent to agencies and to our users that we are serious about solving this problem and making transit information easier to find. When an agency in Texas goes live with us, we see an uptick in interest from the other agencies in Texas; they get excited too and they say, "Well why we aren't doing this too?"

So there are several factors that have contributed to the success that we've enjoyed over the last year, but the most important of these is the increased industry awareness of what we're trying to do and what value we offer agencies and riders.

**Aaron Antrim:** I'm wondering what role riders have played in encouraging agencies to move to Google Transit. I've followed the Google group somewhat closely, and every other post seems to be a rider saying, "Hey, why isn't L.A. included?"

**Sly:** Riders play an important role in this process, and their role appears to be becoming more powerful (see: <http://latimesblogs.latimes.com/emeraldcity/2008/03/bringing-google.html>).

There is a guy on the Google Group (<http://groups.google.com/group/googletransit/>) who has made it his personal mission to get agencies all across California to use Google Transit. He went on a letter writing campaign to tell agencies about Google Transit, and we saw that ([http://groups.google.com/group/googletransit/browse\\_thread/thread/cc33a9503814b225](http://groups.google.com/group/googletransit/browse_thread/thread/cc33a9503814b225)) and thought it was fantastic.

I've never had a conversation with this person

outside of the email that takes place on the Google group, and he single-handedly inspired a lot of agencies to take a good look at what we were doing and consider us.

It's one thing for Google to reach out to an agency and say, "Here's what we're doing," but it's another if you can get a bunch of riders to say, "This would be really useful to me. Here's how I would benefit from this as your customer."

A lot of people have the impression that Google just looks out across the map and says, "These are the cities where we're going to have Google Transit."

The truth is, we look at the map and see everything and say, "We'd like to do transit everywhere," but the path we've taken requires a lot of direct partnership with these agencies.

I think that if we took another path that some others have taken, which is to collect the data on your own, we would probably have more coverage, but I don't think the user experience would be as good. Even with our resources, I'm not confident that we could keep up with 500-plus agencies' schedule changes throughout the course of the year.

## Data Collection

**DJW:** For those who might not be technically inclined to know what a feed is, to clarify, the distinction is that for those agencies that do participate with Google Transit, the information on Google Transit is as current as the information the agency itself puts out. Is that correct?

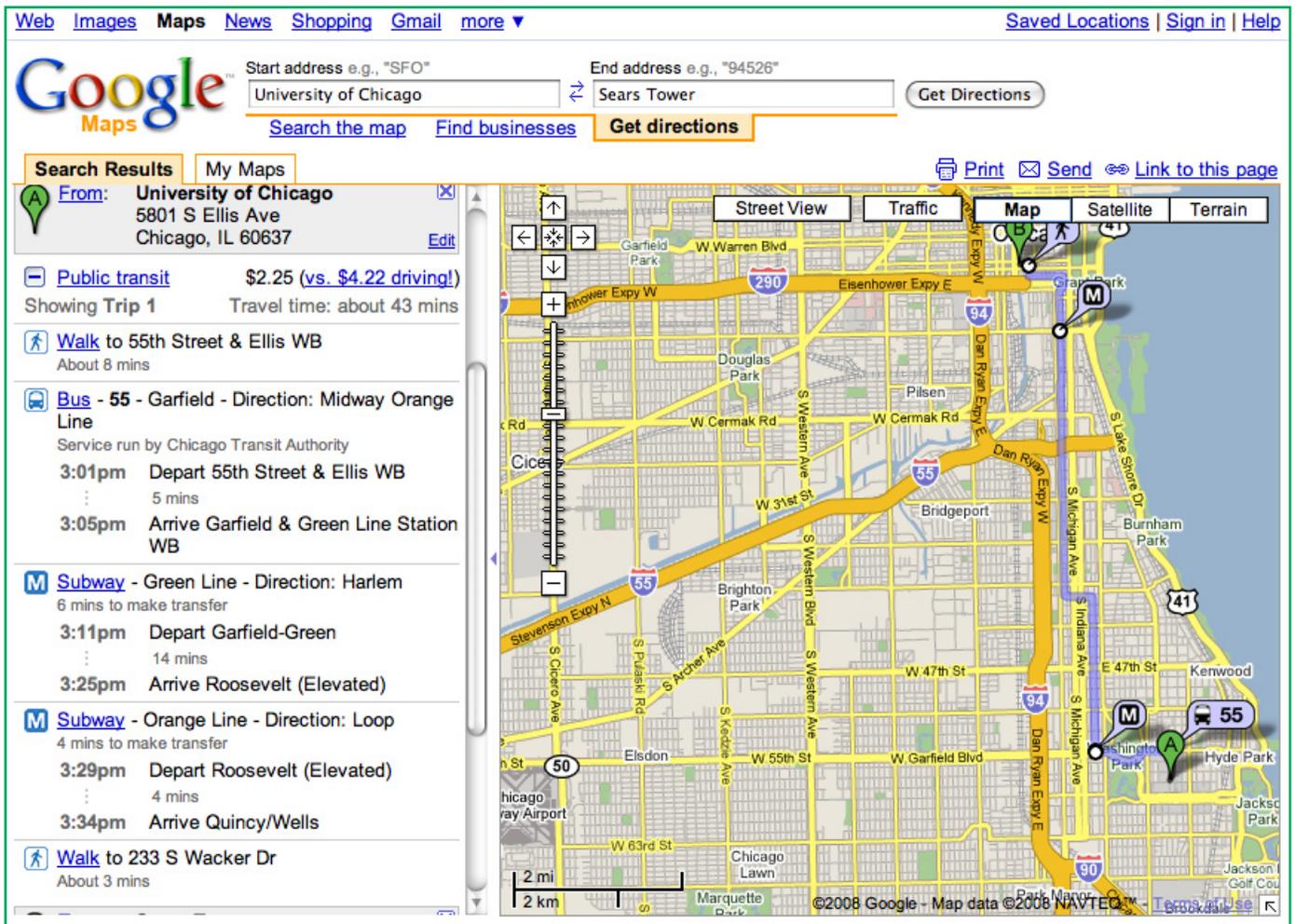
**Sly:** A lot of people ask how frequently an agency can update their data, and the answer is as frequently as they'd like, [but at the moment, that can be no more than once a week]. In general what we've seen is that agencies tend to need to update their feed once a quarter, or once every couple of months.

It's not a real time system, so if an agency is going to have a huge service change, we ask that they give us the feed a few weeks in advance so we can have it in the system, ready to go.

**DJW:** Since there's no cost to the agency, is "participating" really the word for what an agency would do with Google Transit?

"We're really excited that this data is becoming available, not just to us, but to anyone who thinks they could do something useful with it.

"That's a really important point to make, because we get letters from some agencies saying that their feed was requested by a developer who wants to do X, Y and Z with it. And they ask us, 'Is this o.k.?' We always write back and say, 'Absolutely. It's great. That's exactly what we're trying to do here.'"



Google Maps presents transit trips in a format anyone familiar with Google will understand.

**Sly:** Yes. There is no cost to the agency, other than the time required to prepare a feed. A lot of agencies come to us and ask if we can help them, and unfortunately, we are just not set up to do that. And that's where companies like Aaron's can play such a crucial role.

**DJW:** Have they been important and helpful to the agencies that are currently online? Is there any sense as to the ballpark of how many agencies needed help, and how many of them had the expertise in house?

**Sly:** NextInsight, a firm in New York, has a couple of agencies that are up and running, and I think, Aaron, you had three agencies up and running with your product. Is that correct?

**Antrim:** Yeah, that's correct.

The local agencies here have a combined budget of about \$3 million a year, and out of them they had no information technology folks whatsoever. They had an operations manager who barely knew HTML doing their website. So they needed a lot of help. And that's a typical story for any small or mid-sized agency.

**DJW:** At least the agencies listed on Google.com/transit look to be fairly significant agencies. I don't see many of the very small agencies.

**Sly:** I think that part of the reason is because the process of building a feed can be somewhat intimidating.

We're trying to do everything we can on our side to build tools to help validate feeds and preview feeds, but we've collectively made the decision that it's not right for us, at the moment, to be building

“One of the greatest stories that we saw over the past few months was a blogger in Sacramento who, to his amazement, discovered that bus stops were all over the maps, and clicking on the bus stop would actually tell him whether the 18 or the 17 bus stopped there, and when the next scheduled departures were. That’s the type of discovery that we think is really important and differentiates us from a regular trip planner.”

something that would build the feed from scratch.

**DJW:** One of the exciting things that we’ve seen documented is Duluth, an early adopter. They’re documented 12-percent growth in bus ridership, which they seem to attribute to Google transit. Could you talk a bit about that, or similar success stories of other agencies?

**Sly:** When we looked at starting this project, and we talked to various agencies, we found that there were many, many different agencies using different file formats.

And the scalable thing to do was to come up with a common representation that was simple enough for a small agency to use, yet robust enough for the nation’s largest agencies to also use.

A lot of people think that because the G in Google Transit feed specification stands for Google, that we somehow own this file format and that it’s proprietary.

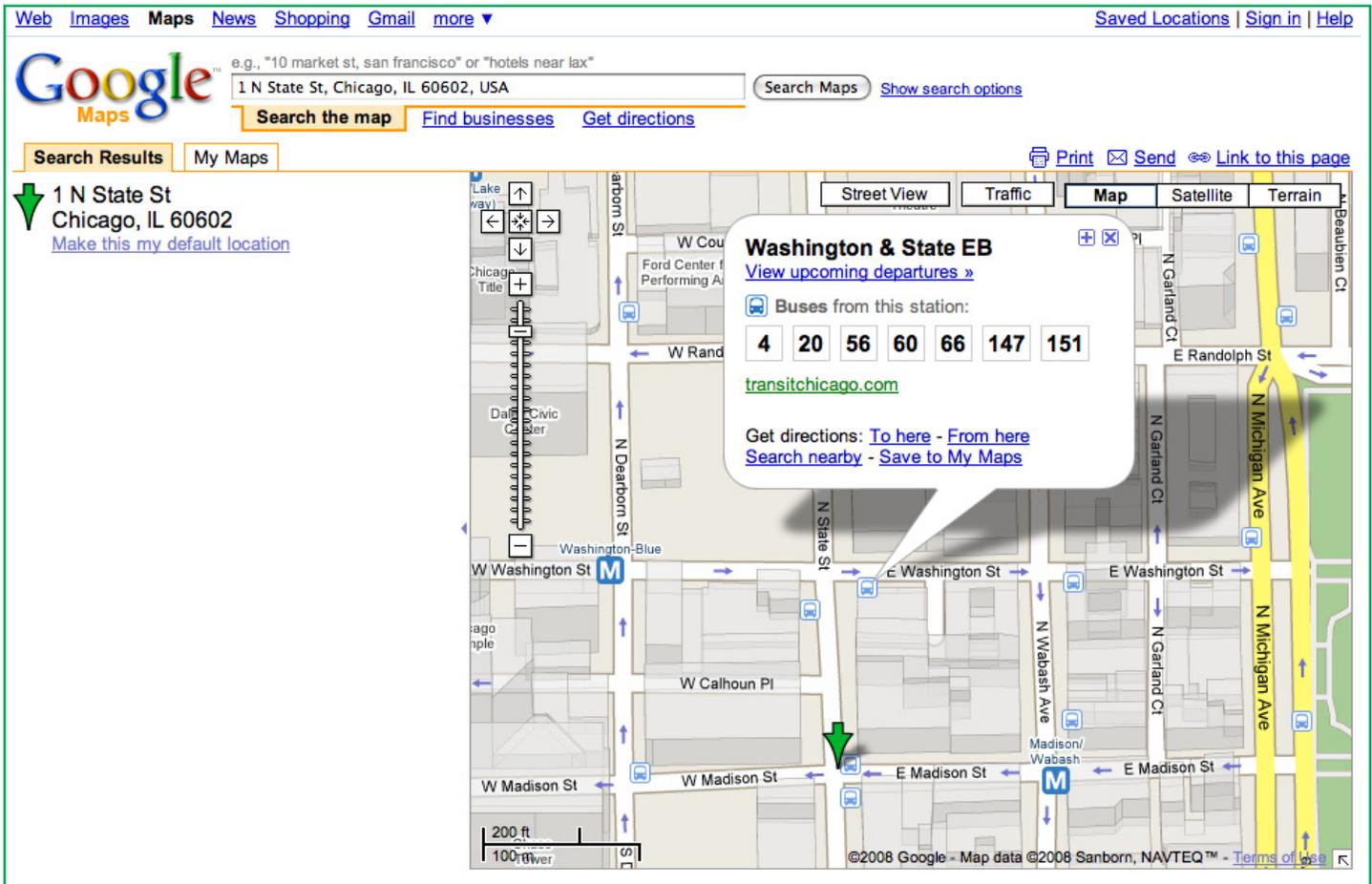
We don’t own the specification; it’s an open file format that anyone is permitted to build a tool to either produce or consume GTFS data. That’s really important, because what we’ve started to see over the last year is, in addition to working with us, a lot of agencies are starting to make their feeds available to general public.

Other entrepreneurs and developers are starting to see this data and say, “Well, I think Google should be building an SMS product,” or, “I think Google should be doing something to overlay the route across a map.”

Making the raw data available to the general public means that if a developer wants to do something with Austin’s data, they can go to the Capital Metro website and download the data and build their own application that uses the same data we use in our product.

The other large mapping providers could just as easily, if they wanted to focus on public transportation, take those public feeds and incorporate them into their product.

What that would do is, one, confirm our belief that this is a useful, important product. And two, it would really encourage a lot of innovation around



Through the normal use of Google Maps in a Google Transit city, potential riders can discover bus and rail stops. Clicking on those stops bring up a bubble showing available buses and, when space allows, schedule information.

this space, and I think we'd start to see everyone start to move even faster.

So we're really excited that this data is becoming available, not just to us, but to anyone who thinks they could do something useful with it.

That's a really important point to make because we get letters from some agencies saying that their feed was requested by a developer who wants to do X Y and Z with it. And they ask us, "Is this OK?" And we always write back and say, "Absolutely... It's great... That's exactly what we're trying to do here."

That's not always well understood within agencies, so I want to make sure that's clear here.

**DJW:** So that means that before you developed this standard that there simply wasn't a standard for

sharing schedule and route data?

**Sly:** There are a few standards, but none, to my knowledge is global. In Europe, there's Transmodel. In the US, there's a joint effort between APTA and the FTA to develop TCIP.

Any type of standards setting process takes a really long time. So we set out to create something simple that we could build upon based on feedback from the industry.

What happens is that once an agency goes live with us, the people at the agency who built the feed can give us feedback like, "You should incorporate timed transfers," or "another feature that is important to my riders is..."

They can post a proposal to say "Here's what I'd

like to see changed in the feed spec to reflect a timed transfer, here's how I envision it working, and I'm willing to supply data that will help test this."

The feed spec evolves over time based on feedback from agencies, which we have found to be incredibly useful. And the important point to make here is that we've committed to being backward compatible with any future enhancements.

## Ridership Data Potential

**DJW:** In a bit of a digression, is there feed, or, is there any discussion about collecting, not only information which is helpful for riders, but the actual ridership data. Is that data carried independently or in some parallel system, or do any agencies combine that schedule and route information with who is actually riding which routes.

**Sly:** Those two dots are hard to connect. Are we interested in counting the number of trips planned, or the number of times a user is exposed to transit?

How would you account for the fact that I'm searching for a restaurant in Portland while trying to find out where I'm going to take my wife for Valentine's Day, and I discover that there's a bus that stops right in front of that restaurant? Does that count as an impression that I can tie to ridership if I ride that night, if I ride two weeks from then?

There's a lot of awareness of transit availability that's hard to quantify here. But I think there's a lot of value because if I'm looking for that same restaurant on a different mapping site, there's no way I would ever discover that there's a bus stop right in front.

I think that if they were to buy a fare online, it would be a much easier connection to make. But since there's behavior that's online that can't be traced to offline behavior, it's really hard to draw substantial conclusions right now.

## Dissemination of Information

**Sly:** We have a lot of work to do to help people understand that Transit is a part of Google Maps. We've started to take little steps towards making the existence of transit data in Maps much more obvious to users.

“Every time someone generates driving directions in an area where we have transit data, we will promote transit as an alternative option. If you think about the number of people who know they can come to Google for driving directions, it's huge.”

One of the greatest stories that I've seen over the past few weeks was a blogger in Sacramento who to his amazement discovered [Sacramento] RTD's bus stops were all over Google Maps, and clicking on the bus stop would actually tell him which bus routes use that particular stop, and when the next scheduled departures was from that stop.

That's a perfect example of the type of discovery that we think is really important, and that really differentiates us from a regular trip planner.

In addition to making stop locations visible on Maps, another major advance that occurred over the last 6 months is the integration of transit routing into Google Maps.

Every time a Google Maps user requests driving directions in an area where we have transit data, we will promote transit as an alternative option.

We generate an enormous number of driving



Start **2329 W Eastwood Ave**  
**Chicago, IL 60625**

End **Comiskey Park**  
**333 35th, Chicago, IL 60616**

When ~~4/12/08 at 2:45pm~~

~~Cost \$2.25 (vs. \$5.57 driving)~~  
Duration ~~1 hour 0 mins in transit, 1 min~~  
walking to/from your route

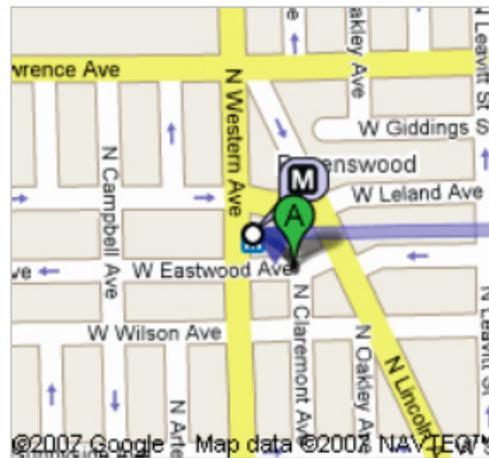


**Begin by walking**

Go to **Western-Brown** (takes about 1 min)

**Subway - Brown Line**  
Service run by Chicago Transit Authority

**2:44pm** Leave from **Western-Brown**



When agencies provide Google with fare information, Google can create a cost comparison for almost every trip.

directions for people every day. If only a small number of people actually click through to see what the alternative transit option is, it's still a big win for us.

We're constantly looking for ways we can incorporate transit into other Google products to generate better awareness of Transit as a feature of Google Maps and of transit as an alternative to driving.

We've also experimented with working with agencies specifically on marketing and promotion, especially when we rolled out in larger cities, such as Chicago and San Francisco, to help build awareness.

It's up to the agency to decide how much or how little they want to promote their relationship with Google. Some agencies have wanted to roll things

out silently, for whatever reason. Other agencies have gone all out.

One of the most successful and most impressive launches that we've had in recent months was Vancouver TransLink. They put together a press conference and invited people that we hadn't even really considered to be spokespeople for this product to come to the conference.

One was a blind person that mentioned the accessibility features of Google Transit and Google Maps and how it works with screen readers. That was something they came up with on their own, and it was a really powerful way of touting this particular feature of Google Transit.

We are o.k. with either approach, but as a company, we are going to be doing a much better job

of promoting Transit as a feature of Google Maps generally, and in specific cities.

We very recently launched Chicago and San Francisco, and those were bigger occasions where we worked closely with the CTA and SFMTA to see how we could work together to get the word out.

**DJW:** Is that something that Elaine works on?

**Elaine Fidadelfo:** Yes, that would fall under me for the press side of things, and our marketing team.

**DJW:** Were you at all involved in Vancouver?

**Fidadelfo:** It was really mostly driven on their end, which was great to see, especially since that's much more sustainable for us going forward, since we can't commit all our resources to every launch.

The same goes for Chicago and San Francisco. They're very large markets so we worked closely with them to see what we could do together to make the launch successful, especially because they both have large tourism markets so the word had to go beyond the small local news.

But they are the experts of their local markets, so in the end, a lot of it has to come from them. And it's more sustainable for the agency in the long run too, since they have a foundation to continue doing their own outreach on in the future.

**DJW:** Sure.

**Fidadelfo:** But we generally work with agencies [to determine] what they're asking for and what they would like to do and how we can fit in with that.

In Vancouver, we certainly did help coordinate with them, and someone from our team did go up and speak at their press conference, but all of the ideas were really driven by them and coordinated on their end. And it went very, very well.

The same sort of model has also recently been used in Chicago and San Francisco; in both of those cities, the mayors, Daley and Newsom, actually came to the press conference to announce the launch, which was really great to see because it showed how important this can be to a local market.

To make something on that scale happen, we had to work very closely with the agencies, but they have the local connections and know what is going to

work. It's a "help us help you" sort of thing.

In the large cities with a lot of tourism, getting word out is especially important since someone going to, say, Vancouver won't read a local blog about Translink.

So it's always my goal to build upon the agency's expertise of their local market and work to see what they think is best for them, and how we might be able to support that.

**DJW:** I don't know if you can disclose if you sensed any larger spike in Vancouver Google Transit usage than in other analogous places. But is there anything you can share on that end?

**Fidadelfo:** On my end I track a lot of the press coverage that comes in. Looking at that, it was all very positive. Just in the fact that articles were written about it, so you knew that people were catching on and the word was spreading, and the fact that the

“The mind set of someone using [a traditional trip-planner] is incredibly different than the mind set of a Google Maps user, who may come to us for one piece of information, and may discover transit in the context of restaurants, or local businesses, or looking for driving directions, and they realize they can actually get there using BART.”

“As a visitor to Australia I have no idea where I’m looking to go. I have a starting address and an ending address, but I don’t know a whole lot about the city. I don’t know where to begin [with the local transit trip planner]

“One thing that’s consistent is, whether I’m in Australia, or Japan or the Czech Republic, the Google Maps interface is always consistent, and I always know how to use Google Maps.”

articles were generally positive.

That’s something that’s publicly available and easily trackable. If you look at articles resulting from that launch, or some of our others, you can see that.

It’s difficult to look at specific numbers, but looking at the coverage will indicate how much the word is getting out there about it, and then the

feelings towards it.

**Sly:** On the technical side, we pay attention to the numbers in terms of usage, but because of the challenges of discoverability and awareness, we are much more attuned to what bloggers have to say. Is it useful, is it not useful?

We have some things that we obviously need to improve, but overall, this is a huge leap forward in terms of the availability of this information. We believe that when we have a few more of the large transit cities up and running, the awareness will follow.

**DJW:** Right.

**Sly:** At the moment, we are focused on expanding coverage [by partnering with more agencies] and building a great product. If you look at what we’re trying to do, it’s an enormous task. We are building what is essentially a one size fits all trip planner for agencies all over the world.

**DJW:** Do you have any anecdotal feedback from some of your early adopters, besides what we saw in Duluth? Are there any other success stories like that that you might be able to share?

**Sly:** I think that a lot of the anecdotal success stories that we have heard have to do with positive press and attention. Portland was a great example.

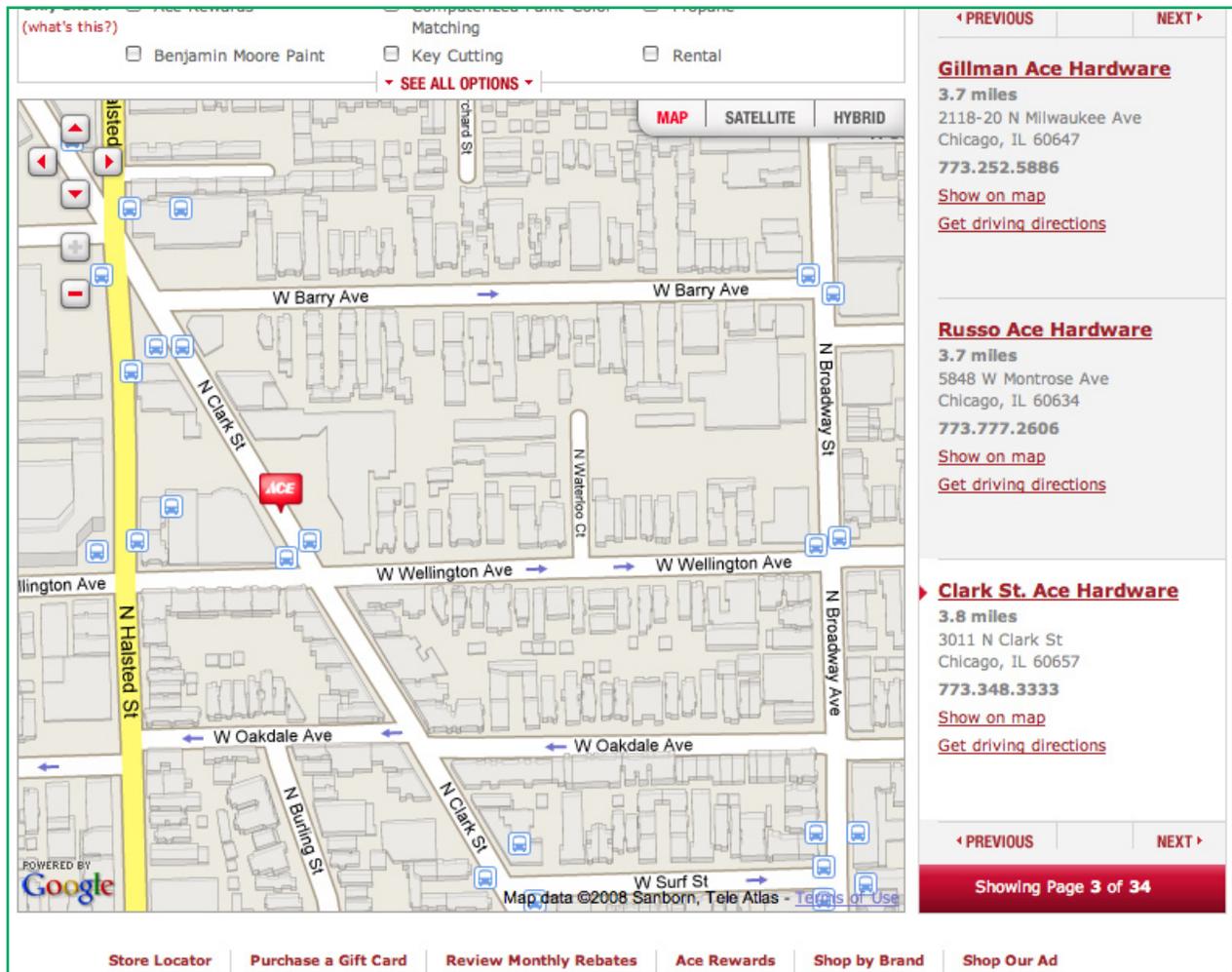
I think that what you’ll find is a lot of these agencies feel that working with us, regardless of whether they have their own trip planner, has been an extremely beneficial endeavor, from awareness of their services, to the actual pop of press that happens upon launch.

## Google Transit and Fare Systems

**Sly:** Now that gas is going up, a lot of people are actually considering public transit much more. When we can provide it, there’s a cost comparison.

In a large spread out area like Dallas for example, the costs are extremely favorable towards public transit. And if you’re looking for one more reason to actually give it a shot, showing them that it costs \$18 to get somewhere that the bus can take you for \$1.75 is pretty compelling.

**DJW:** I noticed that some agencies have cost displayed and some do not, but that’s a function of



Because companies such as Ace Hardware use Google Maps for their store locators, transit stops also become integrated into the store locator in Google Transit cities.

the agency including their fare data in their feed, is that correct?

Sly: Yes, that's correct. If the data is not there, it's not because the agency doesn't want it to be there. It turns out that some agencies have extremely complicated fare systems. In some cases, fares vary by time of day, whether you're a senior citizen or disabled, or how far you're going.

An agency trip planner would certainly be able to handle the thousand permutations of fares because they have a team of people who can customize for that agency's specific fare structure. And that's great; I think that's very valuable.

We decided that it's a neat feature to have if there's a standard fare that can be applied, but [at the moment] it's not worth spending an entire team's

effort to figure out how to represent fares. Our purpose is really helping people find out how to get from Point A to Point B.

Another byproduct of being part of Google Transit is that this transit data rolls into other Google services, meaning Google Earth, Google Maps for Mobile, and something called the Google Maps API [Application Programming Interface].

When they're part of the Google Maps API, they become visible on tens of thousands of these mashup sites. You can go onto Ace Hardware's website and you can type in a zip code, or you can type in an address, and you can see Ace Hardwares nearby.

If you use their store locator to look for Ace Hardware stores in Portland Oregon, and you zoom

“If Ace Hardware approached you and asked if they could put a bus stop on a little map in their weekend advertisement in the newspaper, would you object? Because it’s essentially the same.

“If someone is coming to Ace Hardware and they want to get there, they suddenly discover it’s possible to get there through public transit. That’s just one example of the by-product of working with regular Google Maps and Google Transit.”

in on the map, you can see exactly where the Ace Hardware stores are located in the city, and as you zoom into the second or third closest level, you can see which stores are accessible by public transit. We think this is a really big benefit!

**DJW:** In Portland, you see that the bus stops are named by their route, and it doesn’t look like the time or the schedule data shows up on the Ace Site.

**Sly:** No, so the icons through the API are not yet interactive. We haven’t figured out how we can make that work just yet, because that would essentially be changing the way the map works on all these sites. I don’t know if Ace Hardware would want this new functionality to suddenly become visible.

**DJW:** Right.

**Sly:** That doesn’t mean we can’t do it eventually, but right now, it’s just the location of the stop.

## Benefits of Google Transit

**Sly:** Japan is a special case for a number of reasons. First, we have data for airlines and rail but not bus. Second, because of the high penetration of internet-enabled mobile phones in Japan, we actually had Google Transit for Mobile phones for Japan before we had the desktop version.

However, the back end that powers Japan is the same back end that powers Chicago, Portland and Zurich, so that gives you an idea of the complexity of this project. When we change one thing, it affects China, Japan, Europe, the United States, and Canada.

It’s a really big challenge to build a solution that works well everywhere. Google likes to tackle big problems, and we definitely feel like this meets that test.

**DJW:** One of our beliefs is that a core function of agencies that perhaps agencies need to invest more time and attention in is attracting potential riders. So you’re suggesting that agencies ought to think about partnering or participating with Google Transit, particularly to communicate with those potential riders that they’re not touching now.

**Sly:** One-hundred-percent yes. If you’re using a trip planner, you’ve made the decision to use public transit.

If you’re using Google Maps, you may not be

there because you're interested in public transit. But if you can discover transit in the context of other useful information, it's a lot more likely that you will actually consider transit as an alternative.

To give you an example, I recently went to Australia for a work project. In Sydney they have a service called 131-500. But as a visitor to Australia, I have no idea where I'm looking to go. I have a starting address and an ending address, but I don't know a whole lot about the city, I don't know where to begin.

The Google Maps interface is consistent whether you are in Australia or Japan or the Czech Republic. If you think about the familiarity I have with Google

“The backend that powers [Google Transit] is the same as the back end that powers Portland and powers Austin and Humboldt County... When we change one thing, it affects China, Japan, Europe, the United States, Canada. It's a really big challenge to build a solution that works as well here as it does in Japan.”

Maps to get information when I travel, and if I can find public transit information in a foreign place, that's a great experience.

If I need to find additional information from the agency website, I can go there, but that's one perfect example of people traveling to a different location and using Google Maps to find what they need.

**DJW:** Right.

**Sly:** In large part because of the upcoming Olympics, Vancouver is very excited about visitors who come from out of town.

TransLink has an amazing trip planner, but they saw that Google Maps opened them up to an entirely different audience. So from day one, an agency benefits from having their trip planner in every language that Google Maps comes in. [Currently, Google Maps works in eleven languages.]

So every time we make a little advance, like adding a new language to Google Maps, the agencies working with us will benefit.

**DJW:** Yeah, from our perspective, we see the growth in ridership coming from these potential riders and off peak riders, and commuters largely do figure out how transit can work for them for their regular work commute.

But the growth in ridership has been errands and off peak trips and weekend trips, and those trips are not five times a week where either their employer can help or they'll figure out whether the train or bus works for them.

For those types of trips, it's my suspicion without knowing, and perhaps it's an unknowable question, whether Google Maps is used more for the one time trip query for people who are just trying to figure out how to get to a place where they don't normally go.

That's exactly the audience that transit needs to capture for their more random or non-work related trips, to continue our growth in ridership.

**Sly:** Absolutely. I can tell you exactly how I get from my office to my home using Muni, but I couldn't tell you what to do if you wanted to get to the Golden Gate Bridge using Muni.

I can use Google Maps to get you this information in less than 30 seconds. That's a powerful experience.