

# Microsoft 148<sup>th</sup> Avenue Digital Hitchhiking

## 2. Author: Steve Raney

- Steve Raney is founder of Cities21.org, an advanced transportation research/advocacy nonprofit. He holds three masters: business, software, and transportation from Columbia, RPI, and Berkeley. He has conducted technology product research at Microsoft, Citigroup, and Silicon Valley start-ups. His "wireless carpool assistant," TrakRide, is patent pending. Recent digital hitchhiking presentations: WS DOT Public Transportation Conference (Yakima), Eastside Transportation Choices Coalition (Bellevue), Going Conference (Boulder).

## 3. General summary description of the technology

- Have longer distance Microsoft commuters (4 to 12 mile commutes) traveling in on Bellevue's 148<sup>th</sup> Avenue pick up shorter distance Microsoft commuters (0 to 4 miles) living close to 148<sup>th</sup>. Enhance the connection-making with RFID.

## 4. Transportation benefits: a) Reduces automobile traffic congestion (commute trip reduction), b) Reduces Microsoft campus parking demand, c) increases bus ridership.

## 6. Comparisons to competition having similar/related functionality

- The challenge with today's carpool ridematching systems is that the spatial distribution of worker residences is such that the probability of forming a match is low. Digital hitchhiking looks first for relatively dense spatial worker corridors to design a more flexible solution.

## 7. Cost comparison

- A relatively low-cost commute trip reduction strategy, utilizing the commonsense notion that there are many empty seats in vehicles heading towards Microsoft.

## 8. Potential digital hitchhiking application locations: a) Microsoft commuters using 148<sup>th</sup> Avenue corridor, b) Microsoft commuters using other major arterials, c) Bainbridge Island Ferry loading.

## 9. Largest barrier: finding a willing site/employer for a pilot project.

## 11. Web links:

- 11/18/04 Seattle Times Article, Can "hitchhiking" help commuters? Consultant seeks to ease congestion, [http://seattletimes.nwsourc.com/cgi-bin/PrintStory.pl?document\\_id=2002094189&zsection\\_id=2001780260&slug=hitchhike18m&date=20041118](http://seattletimes.nwsourc.com/cgi-bin/PrintStory.pl?document_id=2002094189&zsection_id=2001780260&slug=hitchhike18m&date=20041118)
- Cities21 Digital Hitchhiking page: <http://www.cities21.org/TreeAnalogy.htm>
- John Niles' Instant Ridesharing web page: <http://www.globaltelematics.com/ihov.htm> .
- San Geronimo, CA licensed hitchhiking page: <http://www.gogeronimo.org/Reg/Reg.html>

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## **Can "hitchhiking" help commuters? Consultant seeks to ease congestion**

**By Eric Pryne, *Seattle Times* staff reporter**

Steve Raney has a new idea for getting suburban commuters out of their cars that isn't really new at all: hitchhiking.

The Palo Alto, Calif., transportation consultant has come up with a scheme that he says would let people who live near major thoroughfares catch rides to work without the uncertainty of traditional hitchhiking or the rigidity of organized car pools.

They'd do it with technology instead of their thumbs, using transponders, the Internet and cellphones to connect with co-workers driving through the neighborhood on their way to work.

Raney calls his brainstorm "digital hitchhiking" or "casual car-pooling." He wants to test it with one employer — Microsoft — on one corridor: 148th Avenue in Bellevue, a four-lane arterial many Microsoft workers use to reach the company's Redmond campus from Interstate 90.

Raney has pitched the idea to Microsoft, King County Metro, and Redmond and Bellevue city officials, so far without success. All have told him they have higher transportation priorities.

Raney has nothing critical to say about the people who have turned him away. "It's not Microsoft's job to pioneer new commute-trip reduction ideas for the entire nation," he says.

But he maintains his idea could someday make a dent in the large number of commuters who live just a few miles from their suburban jobs and drive to work alone.

It's a market that has been especially resistant to transit, car pools and other alternatives to solo commuting, Raney says: "Currently, there is no solution."

### **Tool to fight congestion**

Raney isn't the first person to think of hitchhiking as a tool to fight congestion.

Drivers in Washington, D.C.'s, Virginia suburbs looking for enough passengers to drive in freeway high-occupancy-vehicle (HOV) lanes have been giving lifts to strangers since the 1980s. They connect in the morning at bus stops and in restaurant parking lots.

The small Marin County, Calif., community of San Geronimo began registering prospective hitchhikers and drivers willing to pick them up in 1997, then designated official hitchhiking stops along the town's main road. Hitchhiking has since been largely replaced by a shuttle bus, according to the project's Web site.

Raney says he began exploring the "digital hitchhiking" concept several years ago while he was pursuing a master's degree in transportation planning at the University of California, Berkeley. His interest in technological approaches to traffic came naturally: Before going back to school, he had worked for Microsoft and several other high-tech firms in Silicon Valley.

Raney says he spent about one day a week on Microsoft's Redmond campus in the mid-1990s and gained some familiarity with the geography of workers' commutes. He says the work he's done so far on a digital-hitchhiking pilot project there has been financed by retired Microsoft employees.

Here's how he envisions it would work:

For his hitchhiking guinea pigs, Raney would recruit about 100 Microsoft employees who live within one-third mile of 148th between Interstate 90 and Highway 520 and work at one of nine closely spaced buildings on the Redmond campus.

He also would recruit 200 Microsoft solo commuters who funnel onto northbound 148th at I-90 each morning from points east, west and south. Transponders would be affixed to their windshields so a "reader" on 148th Avenue Southeast, just north of I-90, could identify them when they enter the 4-mile-long corridor.

When a prospective hitchhiker who lives near 148th is ready to leave home, he'd contact a server through his home computer or by cellphone. In turn, the server would send a text message with estimates of when the next few hitchhiker-friendly cars are likely to arrive at his preferred pickup point.

Drivers and passengers would hook up at designated zones at bus stops on 148th. Hitchhikers could walk or bike there — all the drivers' cars would have bike racks — while checking the status of their ride continually if they choose.

"Tech workers tend to like control," Raney says.

How about security? "They can flash their Microsoft ID cards at each other," he says.

And getting home from work? Hitchhikers could use their office PCs to arrange rides.

Raney says he hasn't worked up a precise budget for the pilot project, but figures it wouldn't top \$200,000. The software that would make everything run wouldn't be a big challenge to write, he maintains.

## **Providing an incentive**

But Raney acknowledges he hasn't worked out all the details. One of the biggest questions: Just what incentive would hitchhikers or drivers have to participate?

There are no HOV lanes on 148th; participants still would be stuck in traffic. The trips could take longer than driving alone.

Raney says there's some evidence people might be motivated simply because they'd be doing something about traffic. If that doesn't work, they could be rewarded with coupons from retailers. Or drivers might be given cash — say \$2 per day per passenger.

Dmitriy Nikonov, a Microsoft program manager who drives 148th to work from his home in Newcastle, says he'd pick up digital hitchhikers in return for a reserved parking space on campus. Now, he says, he spends five minutes every morning searching for one.

Nikonov, one of several Microsoft workers who recently accepted Raney's invitation to discuss digital hitchhiking over lunch, says he likes the idea because it doesn't require the commitment of a formal car pool: "I don't have to do it every day, or at any specific time. It works around my schedule."

## **Other projects on table**

So why haven't Microsoft and local transit and planning officials embraced the concept?

Microsoft won't say much about it. In an e-mail, spokeswoman Tami Begasse said the company is working to increase bus service from Seattle and the Eastside and to improve campus shuttle service.

"In addition, we are waiting to complete other projects related to our campus before diving deeper into other options," she wrote.

Others, while praising Raney's creativity, foresee problems making digital hitchhiking work.

Liability could be a concern for any employer sponsoring such a program, says Redmond planning director Roberta Lewandowski.

Kris Liljeblad, assistant director of Bellevue's transportation department, says that bus stops on 148th have their own pullout lanes, but a car stopping to pick up a hitchhiker could slow traffic.

What's more, he says, the project could poach riders from Metro buses and cost the transit agency money.

John Resha, executive director of an association that works with Microsoft and other Redmond employers to reduce solo commuting, says Raney has some good ideas. But he questions whether all the gadgetry Raney envisions would be too much for some. And he says Redmond civic and business officials already have plenty on their transportation plates.

A partnership with Metro has produced more than 30 new van pools in the Overlake area over the past year. Sound Transit is exploring extending rail or some other kind of high-capacity transit to the Eastside. And finding money to widen the 520 bridge remains a priority.

So where does that leave Raney? He says he'll continue to polish the digital-hitchhiking concept, write an academic paper on it, and keep fishing for a large employer who's willing to give it a real-world test.

"Let somebody else try it and work out the bugs," Lewandowski says.

"It may make sense as he does more of the academic work," Resha says. "If it pencils out over time, it could work out."

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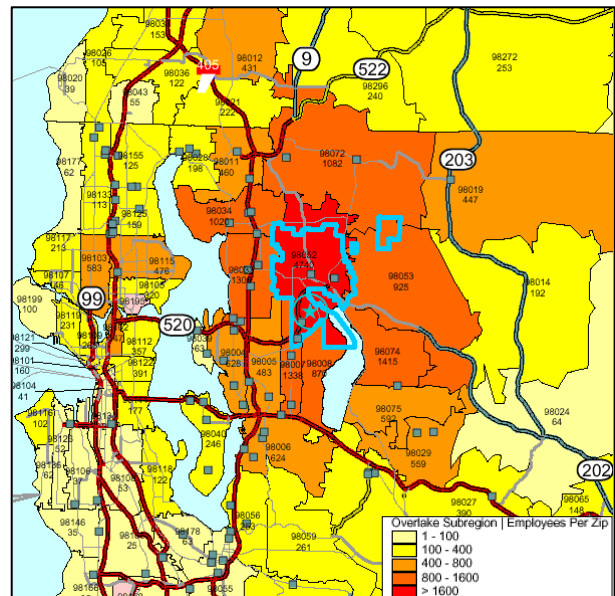
## Additional Digital Hitchhiking Information

### Microsoft commute background

Approximately 75% of Microsoft workers have short, zero to eight mile commutes. The distribution of Redmond Overlake (primarily Microsoft) workers is shown in the graphic to the right (source Redmond RTrip). Redmond's streets were never designed to carry so much commute traffic. The four-lane arterial streets like 148th Avenue are overburdened.

Nationwide, 90% of suburban commuters who commute over short distances drive alone. Few alternatives (bus, carpool, vanpool, bike, scooter, and walk) to solo driving compete well over short commutes. Microsoft makes impressive efforts to reduce traffic, providing vanpoolers with \$65 per month, and bus riders with \$37 per month transit passes.

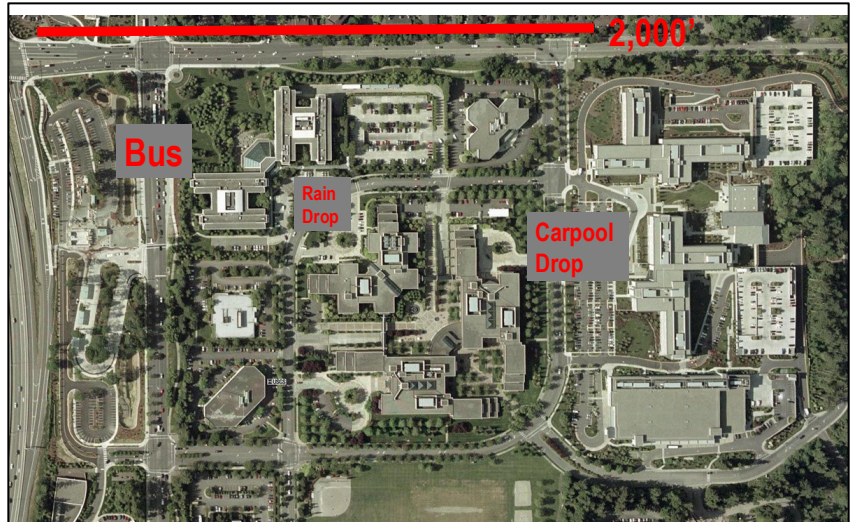
Proposed is a combination of bus service and "casual carpooling" (where rides are dynamically matched). Empty seats in cars represent a vast reservoir of unused "transit" capacity.



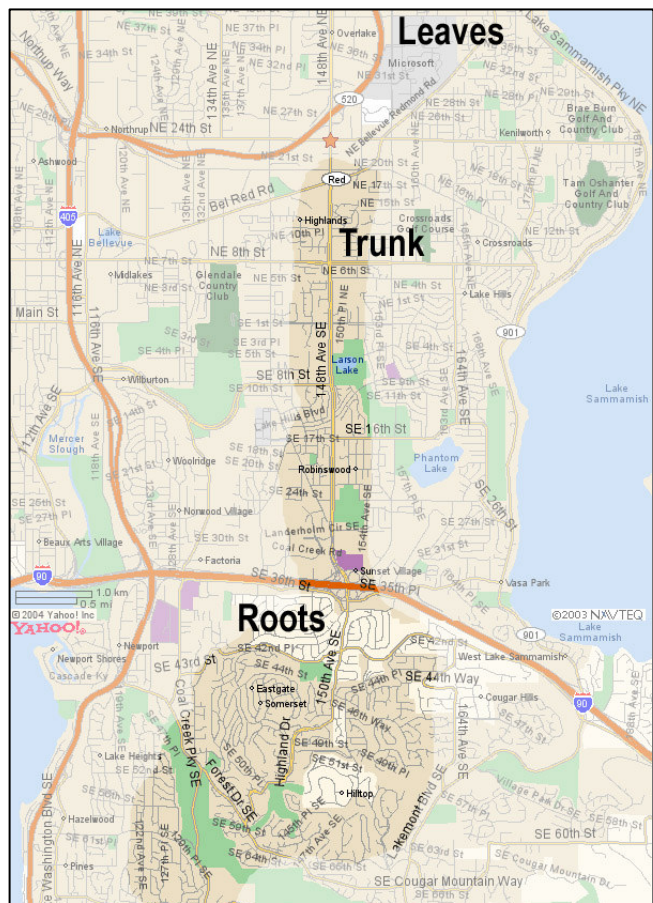
### Tree Analogy

A tree has leaves, a trunk, and roots. A Microsoft Corridor Sweep pilot project (featuring casual carpooling and electric biking) for 148th Avenue South of Microsoft campus can be described in the same way.

The leaves are the Microsoft Main Campus buildings that are very close to the Overlake Transit Center, Buildings 25, 21, 19, 18, 16, 17, 35, 34, and 33. There are more than 4,500 employees in these nine buildings. All these buildings have an entrance that is within 2,000 feet of the Transit Center. In addition, a carpool vehicle can make a SINGLE drop in the middle of these buildings, and all passengers are within 1,000 feet of an entrance to their building. These leaves were chosen because they are easily accessible by walking, biking, scootering, and Microsoft Campus Shuttle buses. In addition, these buildings have ready access to Flexcar loaner vehicles at the Transit Center.



The trunk is the four-mile stretch of 148th Avenue from Highway 90 to Highway 520. There are numerous dedicated bus pullout lanes for bus stops along this route. Casual carpool drivers (and vanpools) may safely pick up Microsoft employees at these bus stops. King County Metro Route 222 bus service plies this corridor, with roughly 30-minute frequency. By combining bus and casual carpooling, more frequent service may be provided. Passengers may choose to ride the bus or carpool, based on whichever is most convenient. Web/cellular software will assist this connection making and will provide safety verification to ensure that drivers and passengers are vetted Microsoft employees. Carpool passengers will be expected to traverse from residence to bus stop by foot, bike, or foldable scooter. Buses and carpool vehicles will be equipped with bike racks, and rack space may be reserved via the web/cellular software. IE bikers will not be scheduled for an unsuccessful pickup where bike rack space is not available.



The roots are car commuters and vanpools originating from South of Highway 90, from areas such as Eastgate, Newcastle, Somerset, Hilltop, Horizon View, and Newport Hills. Microsoft commuters driving West on Highway 90 from Issaquah and beyond should also be amenable to casual carpooling along 148th (although Sammamish Parkway is probably faster than 148th). In addition, Microsoft commuters driving East from Seattle on Highway 90 also frequently take 148th.

The plan is to attract a sufficiently high number of roots drivers to provide frequent pickup of trunk passengers. The goal is to "swarm" 148<sup>th</sup> Avenue with 25 cars/vans and two 2 buses per hour, during normal commute hours.

Roots cars will be equipped with "toll tag transponders," branded as FastPass, and EZ-Pass in various U.S. locations. These small devices affix to the front windshield (lower left corner). They allow roadside transponder readers to determine the number of roots cars that are about to enter the trunk. This information is relayed to the

cell phones of trunk riders, who can better gauge when to leave their house. Cell phone text messages will convey, "roots vehicles 2, 4, & 5 min away."

The digital hitchhiking program will coordinate evening departures similar to the existing Montlake vanpool dynamic seat allocation system that has arisen at Microsoft. Drivers will not be expected to make excessively many casual carpooling pickups during their commute. An upper limit of three pickups should be sufficient, with the average number of daily stops being less.

All digital hitchhikers may make free use of Flexcar loaner cars, taxis for late night ride home, and an internal Microsoft commuter's chat board.

## **Incentives**

Do Microsoft employees have latent "Good Samaritan-ism?" Interviews with 12 Microsoft employees indicate that this is the case. Employees are willing to undertake a small commute time penalty (5 or 10 minutes) to help be part of a solution to the terrible Bell-Red traffic. Aside from this motivation, we will provide further incentives:

We expect to provide coupons from retailers to these carpoolers, to pay them to get out of their car. The kinds of retail stores that employees are interested in are: {outdoor gear, cell phones/PDAs, consumer electronics, coffee, home improvement, clothing, mass retail, sandwiches, on-site chair massage, and gasoline.} Nuride.com collects coupons from retailers and distributes them to commuters to "pay commuters to carpool." Nuride receives a portion of the coupon value from retailers for this program.

We expect that preferred Microsoft on-campus carpool parking will be provided to roots drivers who pick up trunk employees.

## **Rainy Days**

It is expected that carpool drivers will make more stops and drop passengers closer to their buildings under conditions of pouring rain. Microsoft has a parking shortage. If a permanent, 365 days a year (rain or shine) parking space demand reduction can be brought about, then Microsoft will achieve significant, quantifiable real-estate development benefits. These benefits can then be used to motivate further investment in Commute Trip Reduction. If it appears that the Corridor Sweep scheme will stop working when the weather gets really bad, then there will not be sufficient incentive to try out a pilot project.

## **Project Status**

Interviews with Microsoft employees have indicated that the project will be very effective at reducing congestion. Employees have volunteered to write the software.

The Seattle Times article raised a number of objections to the digital hitchhiking scheme, but other local transit professionals have contributed solutions. 1) As far as Redmond Planning Director Roberta Lewandowski's objection about liability, John Niles suggests that the liability issue could be fixed with state legislation. 2) As far as Bellevue's Assistant Transportation Director Kris Liljeblad's objections regarding a) hitchhiker pickups slowing traffic and b) poaching Metro Route 222 bus ridership, Metro's Senior Transit Planner David Stallings indicates a) slowing traffic won't be a big problem; there isn't a big conflict; there is already a shuttle in Kent that is sharing with other vehicles, and b) Metro has no parochial concerns about transit ridership on 222, because there isn't enough to worry about. 3) As far as GRTMA Executive Director John Resha's objection that the technology may be too much for some, this is a difficult argument to sustain against the technology-savvy Microsoft employee population.

A national dialog has been ongoing with commute trip reduction professionals, resulting in the following list of potential digital hitchhiking pilot sites: Bainbridge Island Ferry park and ride lots, U.C. Santa Cruz, Washington D.C., Marin County (CA), and rural NY state.