

Doyle, Dan

From: Doyle, Dan
Sent: Friday, July 15, 2016 12:26 PM
To:
Subject: Test Proposal
Attachments: Daily Log, Test Vehicles.xlsx; Loc by Category, N Queens-4 M Circle.docx

Assume

--We ask for the daily logs for ten test vehicles to be designed so that we can see whether each vehicle was in use in each of the 96 intervals of 15 minutes in the daily cycle. (24 hours times four intervals per hour.) The "design" can simply be the posting of the beginning and ending times for each use of each vehicle.

--We agree upon ten "Usage Codes." Codes 1 through 8 could be defined as "regular daily trip," "grocery/supplies trip," "medical appointment," "community involvement trip," and so on. Code 9 could indicate the vehicle was deadlined, awaiting maintenance, or was actually at the shop.

--An analyst receives the daily logs and converts the usage information into the codes, as shown by the cells shaded in light green in the worksheet named 18-July-16 in the attached file.

--Excel counts the usage codes, as shown by the cells shaded in light blue. It then converts those counts into percentages, as shown on the right hand sides of the two pages.

--We could then see, on a daily basis, the minimum percentage of idle vehicles. For example, the "Idle Percentage" goes as low as 30.0% with the canned data I used. (See bottom row, second page. I applied the =min() function to the column labeled "Idle" to highlight the 30.0%.)

Assume this test is run for four to six weeks. Further assume the idle percentage never falls below 30.0%. Said another way, no more than 70.0% of the ten vehicles are ever in use in the same 15 minute interval. That would suggest that a central dispatch function could manage the demands with fewer than ten vehicles. On the other hand, if the idle percentage does go to zero frequently, that would suggest that a central dispatch function would have less potential to reduce the number of vehicles in use.

I'm told that the scheduling for some trips is fixed, such as medical appointments. The scheduling for other trips is more spontaneous, such as "Let's get ice cream." If it turns out that the idle percentage goes as low as 10.0%, the data will enable us to see the extent to which trips

are fixed in nature or flexible. If it turns out that the idle percentage does go “low” but a large percentage of trips are flexible in nature, then a central dispatch might have potential.

The central dispatcher would have to respond appropriately to all the “fixed trips,” but exercise a bit of restraint in responding to the spontaneous trips. “If you need to shop for groceries, I send a vehicle as soon as one is available.”

With the daily worksheets such as the one attached, we could readily add through the counts of the usage codes to see usage percentages for all seven days of a week, for the five workdays of a week or for each Friday if it looks like Fridays are particularly busy days. And so on.

Notice that the first column in the light blue section is entitled “Blank.” Excel is counting the cells to the left in which no usage code has been posted. It would be wasteful to key each 15 minute interval in which a vehicle was idle. So a blank stands for “vehicle idle.”

I composed this example for ten vehicles and ten usage codes. I think the opportunity to reduce the number of vehicles in use will lie only with a larger number of locations placed into a “transportation cluster.” Yesterday I proposed a cluster of 16 DD locations and 6 MH locations. It may be useful to define more than 10 usage codes.

With a larger number of vehicles in the test, and with more usage codes, each daily sheet would stretch over four or six pages instead of just two. An analyst could offset that by hiding the columns that display the usage codes and the counts of the usage codes and report only the columns displaying the usage percentages.

Ideally we’d receive a daily log for each vehicle for each day of the test period. If for some reason a daily log for a particular vehicle is not available, the analysis would still work. In the attached example, the “idle percentage” would be ten percentage points higher if I deleted the data for one of the vehicles. Alternatively, we could have a code for “daily log not available.” Then exclude that code in the adding across of the usage codes in the light blue section. The result would be percentages only for those vehicles for which we have received a daily log.

An important aspect of the design of this test will be careful definition of usage codes. We should listen to the managers of each location to create a set of usage codes that will be actionable. For example, five codes might describe the various kinds of “fixed trips.” Four other codes might describe the more “flexible trips.” It would fall to the analyst to read each daily log and assign the appropriate code to each trip. The managers would be responsible for insuring that enough is written into the log for the analyst to do that.

The creation of data at this level will reveal patterns not otherwise discernable. For example, the data could reveal how a combination of _____ vehicles, plus the occasional calling for a cab or van, would be optimal. “Yes, the idle percentage does fall to 10.0% but only on rare

occasions. When the dispatcher sees a crunch developing, he has the OK to call in a cab or two in advance.”

Andrew mentioned to me that an outside firm already does certain daily runs. He noted that the salaries/benefits of full time drivers and of two dispatchers would be substantial. The concept of an internal dispatch function for a group of locations might be more attractive if those fixed daily runs were brought back inside and managed by that internal dispatch function. Reason: the internal drivers would be more likely to be productive their entire shifts.

Looking in the opposite direction, the data could be useful in soliciting bids from outside firms to take over the transportation function entirely.

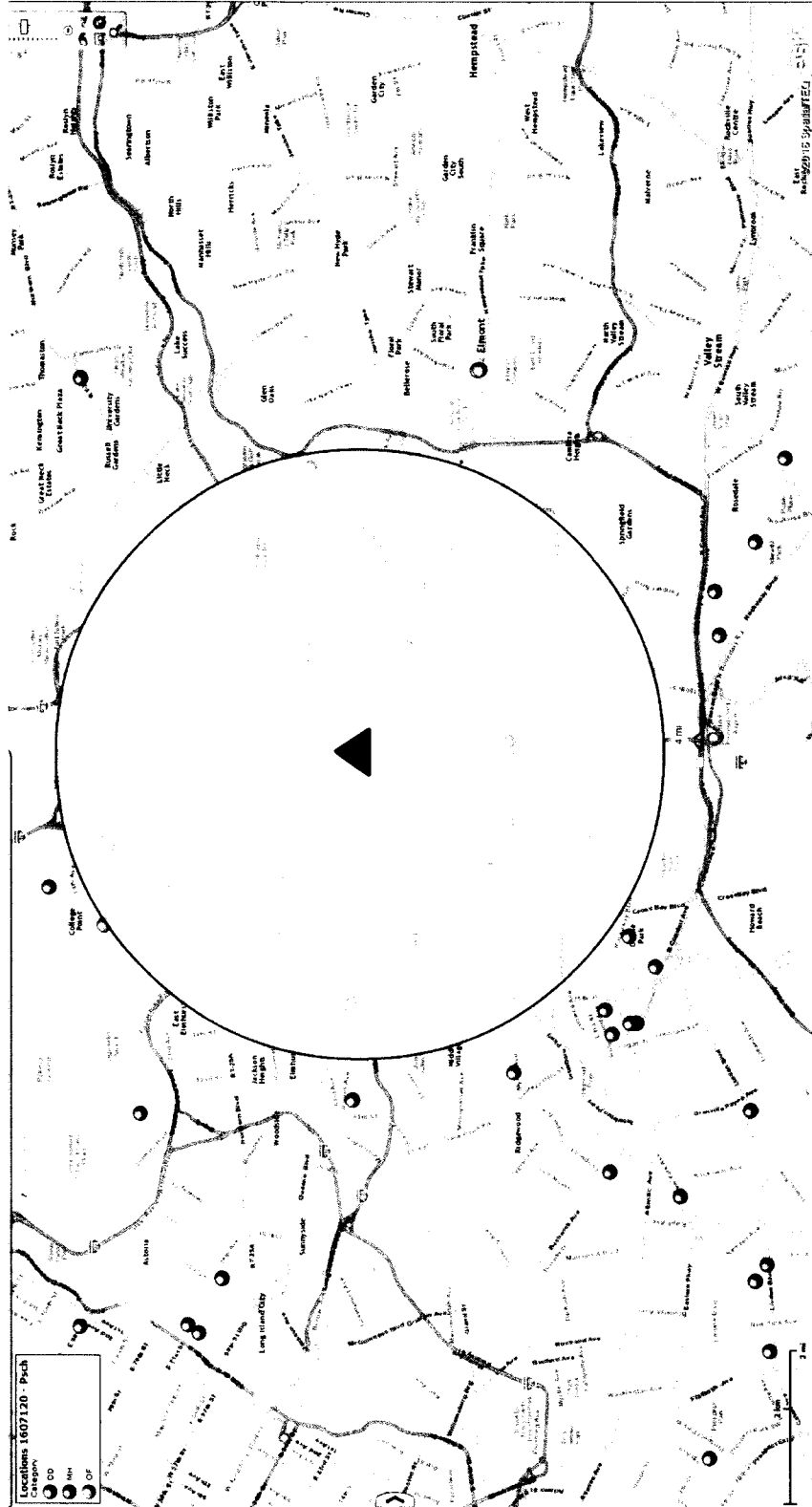
Possible next step: I'm prepare a memo for you to have sent to the managers of the 16 DD and the six MH locations in the attached four mile circle.

Best regards,

Dan

Locations by Category, North Queens

Showing Four Mile Circle from Dispatch Center ▲



14 July 2016