APPENDIX A
Greater Kansas City Bikeways Plan

Public Involvement

WIKIMAP RESULTS
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MEMORANDUM

Date: June 9, 2014
To: Aaron Bartlett, MARC
From: Kevin Luecke & Tom Huber
Project: MARC Regional Bikeway Plan
Re: Task 5: WikiMap Public Input Results

WikiMap is an online interactive public involvement platform that allows participants to identify and comment on specific challenge areas and opportunities to improve bicycling. This memo provides an overview of the data that was collected through the MARC WikiMap. The memo does not describe detailed entries on the map, but rather the results of the survey that accompanied the WikiMap and generalized map comments. The detailed data collected from the WikiMap will help inform the final recommendations for the MARC Regional Bikeway Plan. The full results from the WikiMap will be provided to MARC for internal use and for distribution to local municipalities.

The MARC Regional Bikeway Plan WikiMap was advertised by MARC through various channels and was open for participation from April 7 through May 23, 2014. During this time, 380 people logged into the WikiMap site and created accounts. The majority of participants (370 of 380) completed the Intro Survey (see below), but only 172 people provided input on the map itself. Those 172 people entered 1,759 comments into the map. This rate of participation in the map by registered users is consistent with other WikiMap projects we have used, while the total number of comments far exceeds other projects we have completed. Map input includes identifying specific locations (points) that are barriers to bicycling or bicycling destinations, as well as routes (lines) that people currently use for bicycling or routes that they would like to use.

Intro Survey
When participants registered, each was asked to complete an Intro Survey describing themselves and their biking/walking habits. This section provides an overview of the Intro Survey questions and participants' responses.

How would you describe your biking habits and comfort level?
A number of research studies have shown a bicyclist’s perception of their personal safety riding on a roadway is greatly influenced by their proximity to and interaction with motorized traffic. At low traffic volumes and speeds, many people feel safe and comfortable sharing the roadway with traffic. As traffic speed and volume increase, their perception of safety degrades resulting in a feeling of increased stress and discomfort on the roadway.

In 2004, Roger Geller, Portland, Oregon’s Bicycle Coordinator, developed a classification scheme for bicyclists based on the level of comfort interacting with motor vehicle traffic. It included four categories of bicyclists:

- **Strong and fearless:** High tolerance for traffic stress. Experienced riders who are comfortable sharing lanes on higher speed and volume arterials. These riders are less interested in protected bike lanes and paths than the general population.
- **Enthused and confident:** Some tolerance for traffic stress. Confident riders who will share lanes with cars, especially on rural roads, but prefer separated bike lanes, paths, or paved shoulders on roads with higher traffic levels.
- **Interested but concerned:** Little tolerance for traffic stress with major concerns for safety. Strongly prefer separation from traffic on arterials by way of protected bike lanes and paths.
- **No way, no how:** Not interested in bicycling.
We take issue with Gellar’s title of “strong and fearless” for people who are confident bicycling under most circumstances. Rather than being strong and fearless, many of these bicyclists are experienced and confident – they have experience bicycling with mixed traffic and are confident in their abilities on a bicycle to safely ride in many conditions. These bicyclists are not fearless, and many are not strong, rather they have healthy respect for the risks they may encounter on the street and have the knowledge to mitigate most of these risks. However, for better or worse, Gellar’s title of “strong and fearless” has stuck and will be used in this memo.

Geller estimated (based on his professional experience) that roughly 1%, 7%, 60%, and 33% of Portland’s population falls into each of these four categories, respectively. A 2012 study used empirical evidence (based on 908 survey responses) to more accurately estimate the percentages of Portland’s population falling into each of these four categories. This study identified a distribution similar to Geller’s estimate: 4%, 9%, 56%, and 31%, respectively. The most statistically-significant difference is that the 2012 study found there are over four times more “strong and fearless” bicyclists in the Portland region than Geller has estimated in 2004.

Applied to the Kansas City area
The relevance of this discussion is that advocates, transportation departments, and industry professionals across the United States have begun using this classification system in their communities. Many are also using Portland’s estimated population distribution percentages to classify their residents. In other words, they are assuming that 60% of their population is interested in bicycling, but concerned about interacting with motor vehicle traffic. Since that classification represents the largest group of current and potential bicyclists, many communities are focusing their efforts on better accommodating this type of bicyclist.

To better understand the types of bicyclists participating in the MARC WikiMap exercise, participants were asked what type of bicyclist they consider themselves by selecting one of the following options: Fearless, Confident, Cautious, or I do not bicycle. These general categories correspond with Gellar’s categorization of Portland bicyclists. The results, along with Portland’s 2004 and 2012 estimates, are shown in Figure 1.

Figure 1: How would you describe your biking habits and comfort level? (compared to Portland)

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Based on the survey results, it can be assumed that a significant amount of self-selection occurred amongst survey respondents. In other words, avid bicyclists were more likely to participate in the WikiMap exercise, which would explain the fact that 71% of the participants described themselves as “strong and fearless” or “enthused and confident” even though only 8 to 13% were expected (based on the Portland estimates) to choose these options. It is also possible that the WikiMap participants understood the classification descriptions in a different manner than was intended.

It is important to understand that the Portland 2004 estimate and 2012 study are based on that region’s entire population, whereas the MARC WikiMap results are only based on those people (97% of whom described themselves as bicyclists) that chose to participate. Without performing a statistically-valid survey, such as by randomly selected telephone numbers, it is challenging to determine how the Kansas City area population is actually distributed amongst the four categories.

As far as implications for the Regional Bikeway Plan, it is important to acknowledge that the self-described “fearless” and “confident” bicyclists are important stakeholders in this process. In addition, if one assumes that these results reflect the MARC planning area as a whole, a sizeable portion of the community is interested in bicycling but needs improvements to be made in order to feel safe and comfortable moving around the community by bike.

**What is your gender?**
Across the United States, surveys show that bicyclists—especially avid bicyclists—are predominately male. Figure 2 illustrates that approximately 72% of the WikiMap participants are male and 25% are female (4% did not identify their gender). Most males (78%) described themselves as “fearless” or “confident,” as opposed to only 45% of females that chose one of these two categories. WikiMap participants who do not ride a bicycle were omitted from Figure 2.

The importance of this figure is that females appear to disproportionately feel unsafe bicycling in the Kansas City metro area.

Figure 2: What is your gender? (by bicyclist type)
What is your age?
As shown in Figure 3, the vast majority of the WikiMap respondents were between the ages of 26 and 65 (86%).

Figure 3: What is your age?

What is your home ZIP code?
WikiMap participants hailed from across the MARC region. Figure 4 displays the number of participants by ZIP code in the MARC planning area.

Figure 4: WikiMap participation by zip code - darker colors indicate larger numbers of participants
**Map Comments**

**Line Comments**

Participants drew 995 lines to indicate routes that the currently bike and routes that they would like to bike. Figure 5 displays the number of the different types of lines that participants entered in the map.

![Line Comments by Type](image)

Maps 1 – 3, included at the end of this memo, display the line data that was entered into the WikiMap. Each map series displays the MARC planning area as well as a more detailed view of areas roughly inside the I-435 beltline. The value of the WikiMap data comes not in individual comments that are entered into the map, but in aggregating all of the data to look for patterns. As such, the maps have been intentionally generalized. Each individual line is displayed, such that the more lines that overlap in a location, the darker the lines become. The full WikiMap data will be made available to MARC at a later date.

Map 1 displays routes that people currently ride that they consider to be stressful. Not surprisingly, most of these routes are concentrated in the urbanized area, and most are along arterials or other busy streets. It is important to note that even though people find these routes stressful to bike on, they are still doing so. This is likely to reach destinations that are located on the street such as shops or employment centers, or as a connection across a barrier such as a freeway or bridge.

Map 2 displays routes that people currently ride that they consider to be low stress. While these routes are again concentrated in the urban area, there are also many routes located in the rural parts of the planning area, particularly in the Kansas counties.

Map 3 displays the routes that people would like to bicycle, but do not now, either because they are not comfortable with the routes that are available or there is no direct route. For example, someone may know that they want to bicycle to their office, but if access is only available on a busy street, they may not be willing to bicycle there. This map also has a number of comments that are clearly meant to indicate that people would like to bicycle from Point A to Point B without choosing specific streets – these appear as long straight lines cutting across the map. It should be noted that corridor comments from a public meeting in Miami County are all represented on this map.

It is interesting to note the significant overlap of many streets on each of the three WikiMap line maps. For example, Southwest Boulevard and Merriam Lane were both commented on repeatedly on all three maps. This demonstrates that different people have different ideas about what makes an acceptable street for bicycling. For
some WikiMap users, these two streets are currently "low stress" routes, for other users they are "high stress" routes, and still other map users would like to bicycle on these streets, but will not do so under current conditions.

**Point Comments**

In total, 764 point comments were contributed to the WikiMap. The predominant point type placed by participants was the "barrier to biking" point (see Figure 6).

![Figure 6: Point Comments by Type](image)

Maps 4 – 6 at the end of this memo display the point data that was entered into the WikiMap. Each map series displays the MARC planning area as well as a more detailed view of areas roughly inside the I-435 beltline. Unlike the Maps 1 – 3, these maps have not been generalized; instead, each map displays the actual points placed in the WikiMap.

Map 4 displays points that WikiMap users identified as barriers to bicycling. These points may represent intersections that are difficult to navigate on a bicycle, freeway and river crossings, and other areas that limit people's bicycling. The vast majority of these barrier points are located at arterial street intersections that carry high volumes of motor vehicle traffic.

Map 5 displays destinations that people currently bicycle to. The majority of these points are located within I-435, and many are located on or near major arterials.

Map 6 displays destinations that people would like to bicycle to, but do not currently do so for a variety of reasons.

It should be noted that comments from public meetings in Miami County are only represented on Map 4 and Map 5, although some of the comments may actually be desired destinations that should appear on Map 6.

**Conclusion**

The WikiMap allows participants from any background and any skill level to provide input on conditions for bicycling from the comfort of their home or mobile device. The primary benefit of this is that a greater level of public participation can be achieved than by soliciting input at public meetings. The WikiMap allows input from participants at times that are convenient for them, and when they have time to think about the comments they would like to make. Additionally, the ability to aggregate all input data and display areas with large number of comments eases the analysis of large amounts of public comment.
These maps display user input from the MARC Regional Bike Plan WikiMap. WikiMaps are online interactive maps that allow users to enter routes or points on a map and submit comments about the route or point they entered. Rather than displaying all of the individual data points that were entered into the WikiMap, these maps display a generalized view of specific types of comments.

The map on the left displays the full MARC planning area and the map on the right displays the central portion of the planning area in more detail.

The colored lines indicate where comments were entered on the WikiMap. The darker the line, the greater number of comments that were received in that corridor.

Service Layer Credits: Copyright ©2013 Esri, DeLorme, NAVTEQ
This map is provided "as-is" for informational purposes and no guarantee is made as to the accuracy of the map or data. Plot date 6/9/2014.

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The MARC Regional Bikeways Plan provides an overview of bicycle destination points within the MARC planning area. These maps display user input from the MARC Regional Bike Plan WikiMap. WikiMaps are online interactive maps that allow users to enter routes or points on a map and submit comments about the route or point they entered. Rather than displaying all of the individual data points that were entered into the WikiMap, these maps display a generalized view of specific types of comments.

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