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Streetplan: Hacking Streetmix to do Community-Based Outreachon the Future of Streets

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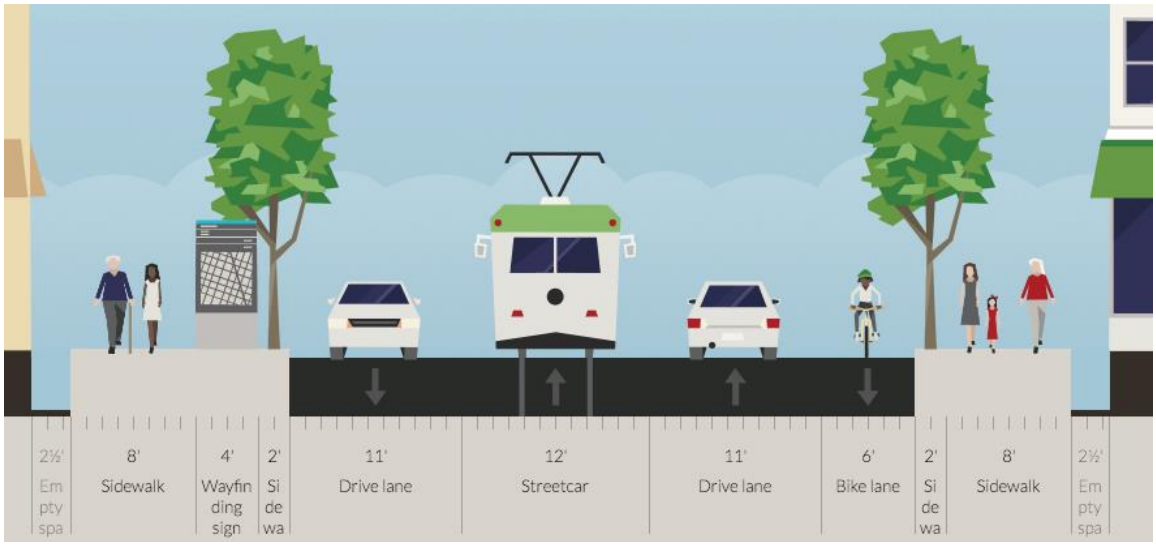
Streetplan: Hacking Streetmix to do Community-Based Outreach on the Future of Streets

By William (Billy) Riggs, Michael R. Boswell and Ryder Ross

SUMMARY

Streetplan is a tool that was created in 2016 building on the open-source, Code for America project, Streetmix. The goal was provide dynamic, participatory planning of streets, supporting traditional community based methods with a digital infrastructure that allowed for real-time information submission and dissimination. The tool allowed for urban planners and decision-makers to capture and then aggregate public feedback on the future vision on how streets can be made more healthy and livable.



INTRODUCTION

Transportation behavior is becoming ever-more complex as digital information serves to moderate travel behavior and research has shown that community based digital tools can be effectively used to shape the built environment for walking and biking (Riggs & Gordon, 2015). This proliferation of geospatial information provides an additional tool for influencing behavior through mobile frameworks and through digital representation tools. For example, tools like SeeClickFix and Streetmix have been used to do conceptual design of sustainable streets. Likewise tools like Mindmixer and Brigade have been shown to increase public participation and be supportive of community-based and participatory planning (CBPP) methods (Evans-Cowley & Griffin, 2012; Riggs, 2016).

In academic circles this has given rise to the idea of urban informatics and quantified activities; or the ability for individuals to know and disseminate their location-based-information including built environment attributes, perceptions and observations, activities conducted, trip times and type, money spent, etc. (Carrel, Ekambaram, Gaker, Sengupta, & Walker, 2012). This geo-spatial information, which is already being used to influence behavior in other fields, can be applied to planning and environmental design, and therein lies the goal of this project – to combine digital tools with CBPP methods and facilitate collaborative design of the built environment for walking and biking.

STREET PLAN

PROJECT OVERVIEW

In 2016 our team undertook a pilot street design project as a part of the Vision San Luis Obispo project in San Luis Obispo, CA. The project involved deploying a version of StreetMix (which we called StreetPlan) using a case study street in the City of San Luis Obispo, and then capturing data from citizens about what the future vision for that street, space or urban area—articulating how the public at large prefers and how they want to allocate active transportation resources in that location.

While we had appreciated the functionality of Streetmix the product did not allow us to capture public input and to aggregate this for decision-making and planning purposes. Our modified version allowed for us to engage participants on street priorities and then to combine those priorities show community preferences. The goal of providing these community priorities and trade offs was to inform street section planning, design and traffic modeling / simulation. Ultimately it provided a community-based process for getting cities to get a data-driven pulse on community preferences and to articulate those results online and in plans.

DEVELOPMENT

In terms of backend development, we forked the Streetmix Github repository so we could keep track of our changes to the code. We began with a default street layout and made this a fixed option, changing the default street width, the building height, the number of lanes and type of lanes to look like our case street.

We also identified which features we wanted to update or change or remove in the base Github package in order to make our tool easier to use and simpler to understand. We removed features such as the Twitter sign in; My Streets feature and the Sharing streets via Twitter which we felt would distract from our goals. After that, we added a Submit Street feature, which asked the user for some basic demographic information and if they would mind being contacted / providing contact information.

On the backend, we wanted to track which streets were submitted, so we changed the database schema to allow for a new 'submitted' boolean. We also added an API endpoint to handle the submissions, and send an email out, similar to how the feedback feature works currently. Once that was functional, we changed the welcome message to instruct the users on what we wanted them to do while using the tool.

DEPLOYMENT

While the interface and development provided a tool, onsite data gathering was critical to the project's success. Data was gathered at a public event where our team was available to assist with any issues. We set up a bank of computers with wifi-enabled hotspots for the public to congregate and submit their "street plans" as pictured below. While we anticipated that the tool could be used to collect data in a virtual environment we cannot underscore enough the power of using it in an onsite, community-centric environment.



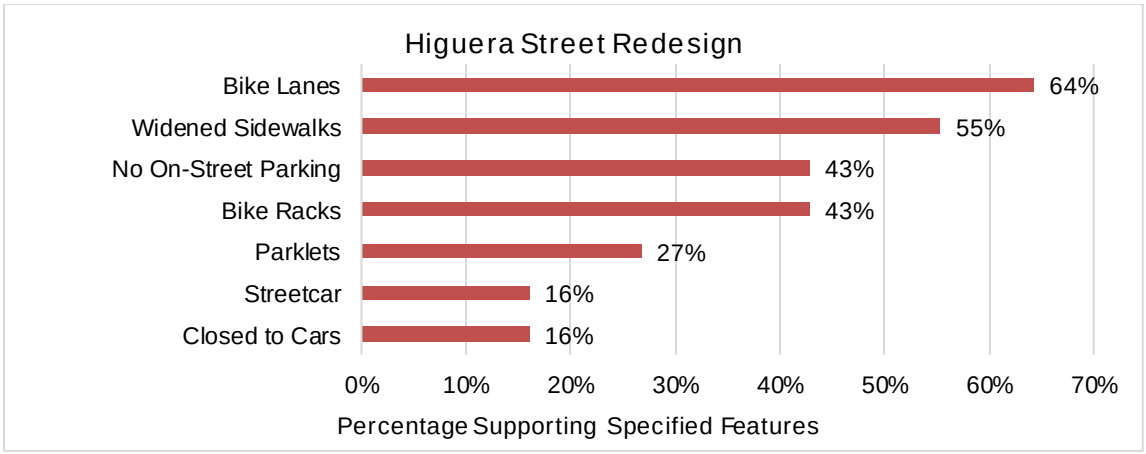
While our tool could be used to collect information beyond the event, based on our experience the process of having citizens work through design options alongside others was very useful. People engaged in important discussions on the trade-offs faced (e.g. if you have more space dedicated to bicycles then that leaves less space not only for cars but for pedestrians), and made decisions based on those discussions; grappling with these issues in parallel with others. This underscored an important distinction of our tool in that we bounded the street based on the reality of the existing right-of-way available—something very different than the Streetmix tool which can allow for portrayal of streets that extend beyond the realm of feasible alternatives in engineering most streets.

REPORTING

The deployment and data collection we aggregated and analyzed the submissions that were received. To do this we wrote a number of MongoDB database queries on the entries that had been logged (over 200) to find out information including:

- How many streets were submitted
- How many lanes were used
- How many submitted streets had bike lines, parklets
- How many streets had no parking

We provided the City with a summary of the aggregate data in .csv format and also provide a memorandum that summarized the key points from the data. This included summaries of the data on the type of features that had been preferred (as shown in the graph below), along with example submissions, and a discussion of opportunities and constraints based on our experience in transportation engineering.



STREET PLAN

FUTURE

There is ample room in the future to bring this type of technology to the community. Given appropriate marketing and extended development, we anticipate that are between 30 and 80 cities that could be interested in such a software-as-a-service over the next 1-2 years based on the number of cities in the US conducting streetscape plans.[1]

Next steps in extending this work are to conduct further refinement on the tool and to begin work with other cities who want to engage the public about reshaping streets. Since we began our project, the base Streetmix code has been updated, we intend pull those changes into our repository and to contribute toward migrating the code to the React/Redux framework.

Ultimately the goal continued to be to see more sustainable and safe streets for all.

ABOUT US

The Streetplan team includes William Riggs, Professor Michael Boswell and Ryder Ross.

William Riggs, PhD: Dr. Riggs is an Assistant Professor at Cal Poly, San Luis Obispo and a leader in the area of transportation planning, engineering and technology, having worked as a practicing planner and published widely in the area. He has over 50 publications and has had his work featured nationally by Dr. Richard Florida in *The Atlantic*[2] he is also the principal author of Planetizen's Planning Web Technology Benchmarking Project.[3]

Michael Boswell, PhD: Dr. Boswell is a Professor of City & Regional Planning at Cal Poly, San Luis Obispo and one of the preeminent experts on strategies to reduce emissions and local climate action planning. He is the author of the book Local Climate Action Planning[4] and most recently providing strategic advice to the United Nations as a part of the COP 21 proceedings.

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[1] We estimate that of the roughly 22,000 municipalities in the US, approximately 1 in 5 are doing some type of streetscape or circulation plan every year based on the normal 5-year time horizon for such documents that is usually established by local ordinance. Of these 4,400 cities if such software solutions could capture only 1% that would equate to 44 cities a year interested in using such a tool.

[2] http://www.citylab.com/design/2014/12/growing-evidence-shows-walkability-is-good-for-you-and-for-cities/383612/

[3] http://www.planetizen.com/node/73480/city-planning-department-technology-benchmarking-survey-2015

[4] http://islandpress.org/book/local-climate-action-planning

Ryder Ross: Ryder Ross is a web developer in San Luis Obispo, CA and has been developing websites and web software since 2000. Before starting his own consulting agency, he worked on highly trafficked websites for Activision and Warner Brothers Games.

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