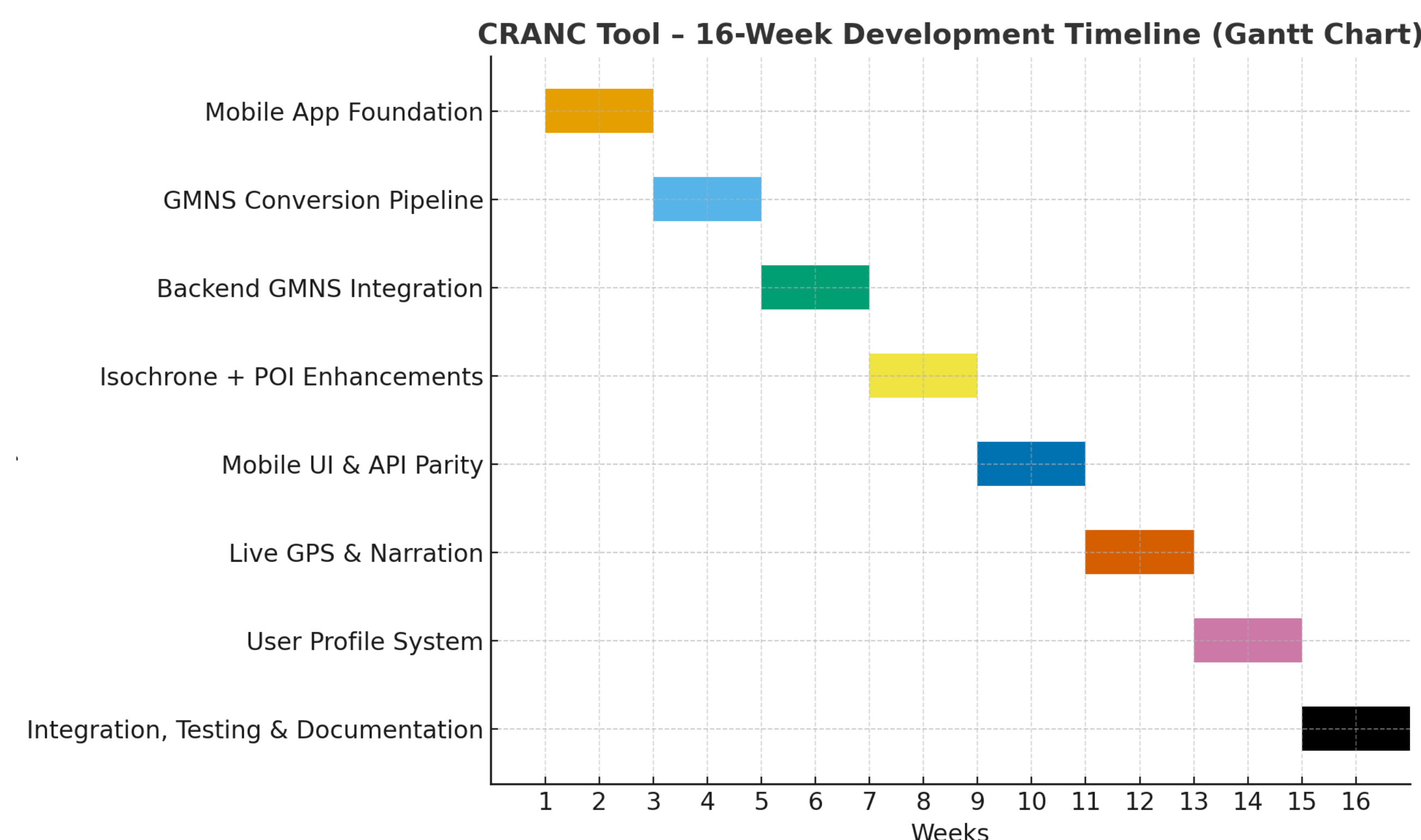


What is the Problem?

Current bicycling infrastructure is constrained by **static maps, inconsistent routing recommendations, and slow feedback loops**. Our sponsors seek a solution that integrates **real-time user observations** to deliver **dynamic, evidence-based routing guidance** for both **cyclists and transportation agencies**.

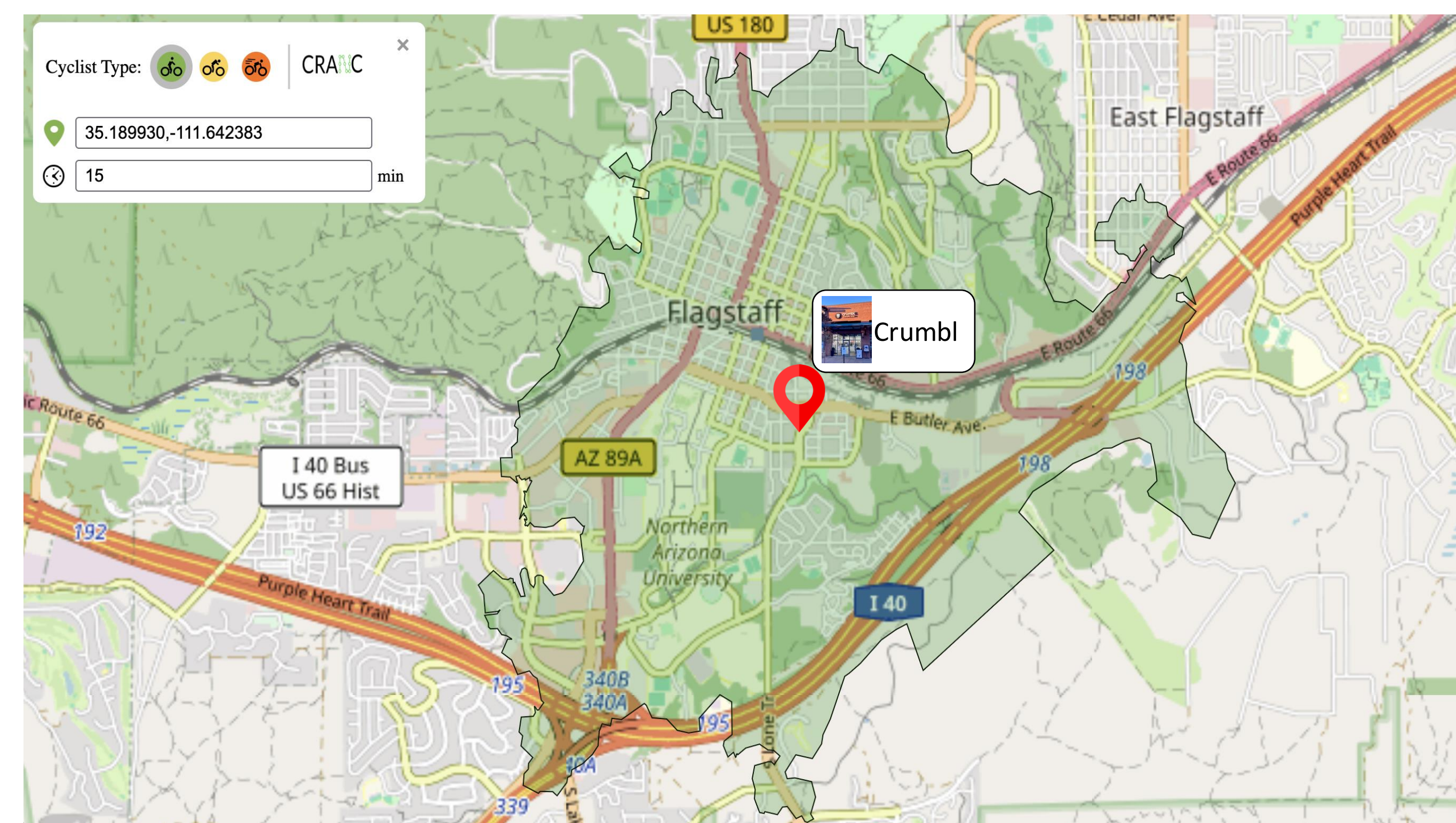
- **Static maps fail to reflect real-time conditions** such as closures, hazards, or temporary disruptions.
- **Routing tools often provide conflicting or inaccurate suggestions.**
- **User feedback is delayed**, limiting planners' ability to respond quickly to changing conditions.
- **Transportation agencies lack data-driven insights** for infrastructure planning and improvement.

Plans, Goals, Stretch goals



Our Proposed Solution

Our solution will provide **real-time, data-driven bicycling route guidance** that **integrates user observations** to support both **accurate cyclist navigation** and **informed decision-making for transportation agencies**.



Enhanced Isochrone + POIs

Interactive maps showing accessible destinations within cycling range

Mobile Navigation App

GPS tracking with turn-by-turn voice guidance on iOS/Android

Technologies Planned



Feasibility

Through **comprehensive technology analysis**, we validated the **feasibility and effectiveness** of our planned system architecture. These selected technologies collectively support **real-time routing, cross-platform deployment, and enhanced spatial insights**.

Selected Technologies:

- **GraphHopper Routing Engine:** Optimized for bike-specific routing and customization profiles.
- **AWS Amplify + Location Service:** Enables secure backend integration and reliable GPS tracking.
- **Flutter Framework:** Provides a performant, cross-platform mobile application.
- **Enhanced Isochrone Visualization:** Integrates points of interest for richer decision-making and planning

