ZotWheels Automated Bikeshare Program
University of California, Irvine
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ZotWheels
University of California, Irvine (UCI)

- Large 1500 acre urban campus with daytime population of 38,000
- TDM goal of housing 50% of its students; approximately 12,600 beds available
- 1800 faculty/staff housing units on campus
- Established bike infrastructure
- Received Silver Bike Friendly University 2011-2015
- Bike program in place to educate, encourage, enforce called BEEP
ZotWheels Locations

• Placed on bikeways at entrances to the Inner Ring where cycling is permitted
Policies, Plans and Commitments

- Transportation Services implements a variety of TDM measures to reduce traffic and emissions on and around campus
- Toolbox includes shared/zoned parking, bikeshare, carshare, incentivized bike/walk, car- and vanpool, subsidized bus and train passes, and support of campus shuttle system
- Work with local transit authority (OCTA) to link transportation center (Tustin Metrolink Station) with UCI campus
- UC Irvine 2007 Long Range Development Plan (plan for growth through 2025)
- Southern California Air Quality Management District Rule 2202 (UCI AVR 1.89)
- UC-wide Policy on Sustainable Practices
- American College and University Presidents Climate Commitment
ZotWheels Imagined

- ZotWheels design imagined by Ron Fleming after renting a mall stroller
- Vendor contacted and agreed to modify product for use with bicycles
- Software and RFID technology incorporated
- Mascot-themed bikes purchased
- Program had support at all levels of campus administration
ZotWheels at UCI

• Unique planning process at university
• Worked with campus planner and facilities
• Site approvals - UCI Design Review Team
• CAD site drawings by T&DS Design Services
• Antennas positioned for best connectivity by UCI OIT
• Support through Bicycle Advisory Group and other campus organizations
• T&DS staff readied for deployment
ZotWheels Operations

• P&TS-managed
• Staff include administrator, IT support, bike support team, marketing, private on-campus bike shop, maintenance/tune-up company
• Daily database check for wireless connectivity, available bicycles, members in violation, reporting functions
• Bike Support Team redistributes bikes, performs minor maintenance, checks for issues and takes to bike shop
Program Details

- Liability waiver vetted by campus Risk Management
- Program is covered under campus standard insurance policy
- Online acceptance of waiver, bicycle and pedestrian safety course
- Helmets not mandatory (CA law)
- Program rules and locations coincide with campus policies (only 18 and older can ride, ride sunrise to sunset, ride on bike paths)
Program Details

• Self-funded through permit sales and citation revenue
• Vehicle miles replaced is unknown as evidence is anecdotal, not GPS verified
• ZotWheels availability complements other modes
• Allows UCI to meet emissions reduction targets
• Promotes changes to commuters habits
• ZotWheels bikes are a visual reminder of UCI’s commitment to reducing emissions
Emissions Reduction Calculations

- **CLAIM 1:**
  - Riding a bike as compared to a drive-alone vehicle reduces approximately one pound of GHG emissions for every mile traveled.
  - **CALCULATIONS: (EPA)**
    - 1 mile traveled in vehicle = 1/20.64 gallon (.0485 gallon/mile)
    - CO2/mile = .0485 gallon/mile X 19.4 lbs/gallon = .941 lbs CO2/mile
    - Total GHG = 100/95 of CO2
    - GHG savings/mile = 100/95 X .941 lbs/mile = .991 lbs/mile
    - For every mile traveled by bike versus a car, **.991 lbs of GHG emissions is saved.**

- **CLAIM 2:**
  - The present UCI ZotWheels stations will save 16 metric tons of GHG emissions this year. In future years just the original 4-station ZotWheels system will save 32 metric tons annually.
  - **CALCULATIONS: (EPA)**
    - 2 miles X 50/day X 365 days/year = 36,500 miles/year
    - AT 2 miles/use =
      - 36,500 miles saved
      - 36,500 miles X .991 lbs GHG = 36,172 lbs GHG saved
      - 36,172 lbs GHG = 16.4 metric tons saved
      - If 100 users/day (as expected for ZotWheels in 2011 after more promotion of the system), will see double the savings in emission reduction
      - 2 miles/use at 100 users/day = 32.8 metric tons saved per year (**8.2 metric tons/station**)
  - **CALCULATIONS: ESTIMATED SAVINGS –**
    - Annual ZotWheels savings at 2 miles/use = 8.2 metric tons/year/station
How ZotWheels Works

• Interactive mapping shows bike availability at each station
• Slide card at kiosk to rent bike
Swipe Your Card and Go!
ZotWheels Website

- Easy to navigate website
- Online registration
- Online safety course
- $40/year, unlimited use
ZotWheels Database

- Wireless connectivity status
- Number of bikes at each station
- Member activity
- Reports generated by date range or topic

![ZotWheels Database Interface]

The ZotWheels Database includes features such as wireless connectivity status, number of bikes at each station, member activity, and reports generated by date range or topic. The interface allows users to access real-time data and generate reports for detailed analysis.
Purchased a surplus van from campus fleet services to take bikes needing repair to campus bike shop

Student employees are members of Bike Team, specially trained for ZotWheels duties
Marketing and Branding

Article from OC Register

Article from UCI Communications

Sustainable Transportation website

Collateral ST material

Material given to every SPOP attendee
Results

- We helped move the bikeshare conversation in a positive direction
- We learned from our experience and added to the body of knowledge
- Bikeshare is an integral component of a complete sustainable transportation system and replicable
- Over 1400 trips by bicycle
- Over 100 members
- Over 350 pounds in GHG not emitted
- Growth in regional programs (OC)