Accelerating Active Transportation Change in Northern Virginia

Data Analytics: Accessing Meaningful Data and Leveraging it

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How Cities are Using Data Analytics to Accelerate Active Transportation Change

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What is Mobility Lab?

- Research Center and communication source in Arlington County
- Part of Arlington County Commuter Services (ACCS)
- Focus on Travel behavior and TDM research
- Look at best practices

https://mobilitylab.org/
How Cities are Using Data Analytics to Accelerate Active Transportation Change

Inform Policy

Arlington County

Shared Mobility Devices (SMD) Pilot

Inform Implementation

New York City

Left-turns and calming treatments

Inform Planning

Seattle

Bike and Pedestrian Safety Analysis (BPSA)
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Arlington County Shared Mobility Devices (SMD) Pilot

• Arlington County ran a Shared Mobility Devices (SMD) pilot from September 2018 to December 2019
  • E-scooters and dockless e-bikes

• Premise of the pilot – Use Data Analytics to Inform Policy!
  • Collect data to understand:
    • How are these new devices performing?
    • Do they promote safety? And advance the County’s Transportation Objectives?

• Mobility Lab lead the pilot evaluation – design the research, collected and analyzed relevant data
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Arlington County Shared Mobility Devices (SMD) Pilot

- Comprehensive data
- Many policy implications

✓ Will focus next on just one!

Mobility Inbox:
- County inbox for the community to comment on the pilot
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Arlington County Shared Mobility Devices (SMD) Pilot

✓ Qualitative analysis of 727 emails

31% on improperly parked SMDs blocking paths on sidewalks

14% on safety hazard for pedestrians who can trip on sidewalks

“Ordinance Should Establish Safe and Compatible Places to Park”!

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NYC’s Left-Turn Calming Treatments

• 2014: Initial Data review: Left turns are problematic!
  • 3 times more severe injuries than right turns
  • 30% of all ped/bike injuries
• 2016: Left Turn Pedestrian and Bicycle Crash Study (Don’t Cut Corners)
  • Treatment evaluation:
    • NYSDOT crash data (1996-2014)
    • analyzing 3 years before and 3 years after
    • 487 intersections where treatments were installed

<table>
<thead>
<tr>
<th>Treatment</th>
<th>LT Ped and Bike Injuries (change)</th>
<th>LT Ped and Bicyclist KSI (change)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left Turn restrictions</td>
<td>-41%</td>
<td>N/A</td>
</tr>
<tr>
<td>Left Turn Bays</td>
<td>-15%</td>
<td>N/A</td>
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<tr>
<td>Protected Bike Lanes</td>
<td>-15%</td>
<td>-53%</td>
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<tr>
<td>LT Only Signals</td>
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<tr>
<td>Leading Pedestrian Intervals</td>
<td>-14%</td>
<td>-56%</td>
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</tbody>
</table>
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NYC’s Left-Turn Calming Treatments

- DOT developed and implemented 107-intersection pilot initiative in 2016 to test Left-Turning calming treatments
  - Flexible delineators
  - Road markings
  - ...
- Evaluation: ~20% reduction in median turning speeds as well as safer turning behavior
- Calming treatments were installed at an additional 110 location in 2017

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NYC’s Turn Calming Treatments

✓ Started the Turn Calming Program…

- Ped injuries decreased by 20%
- Left turn speeds decreased
  - Average LT speeds decreased by 53%
  - Maximum LT speeds decreased by 38%

Turn%20Calming%20treatments&text=The%20Basic%20Hardened%20Centerline%20treatment,six%20feet%20into%20the%20intersection.

Data-driven approaches accelerate change!
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Bike and Pedestrian Safety Analysis (BPSA)
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Seattle’s Bike and Pedestrian Safety Analysis (BPSA)

- **Eliminating traffic-related deaths and serious injuries by 2030 under Vision Zero (VZ).**
- **Bike and Pedestrian Safety Analysis (BPSA):**
  - Modeling ped/bike safety - understand where, how, and why crashes happen
  - Quantitative support/justification for selecting countermeasures
- **Comprehensive Data**
  - Ped and bike crash data
  - Ped and bike volume data
  - Roadway, lighting, traffic signal presence,
  - Demographics, transit
- **Result**
  - Factors that contribute to crashes
  - Identify locations of high crash frequency


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Seattle’s Bike and Pedestrian Safety Analysis (BPSA)

Integrated it into existing Complete Streets Checklist Process
• If a project includes a BPSA-identified location
• Reviewed for potential pedestrian and/or bicycle improvements.

Making streets safer
• Improved almost 300 intersections
• 34% decrease in serious injury and fatal ped collision

Cultural shift within SDOT
• Traffic and design engineers more accepting of proposed countermeasures at sites if BPSA-identified

THANK YOU!

Not an exhaustive review!!
Get the discussion started!
More during the Q&As....
REFERENCES

• Arlington County’s SMD Pilot
  • Pilot Page
  • Research report
  • County board report
• New York
  • NYC LT
  • LT study
• Seattle
  • Vision zero Initiative
  • BPSA – Phase 2
  • Toole design
  • FHWA review of the case study
• FHWA Case Study Analyses – STEP Resources