Designing Innovating Transportation Solutions
Starting with the Data

Data, Data, Data…..

Conventional Paradigm:
Collect the minimum data on a “Typical Day” at a
Single Location

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5/9/2017
Improving Signal Settings Plans

Traditional Approach

Field data collection of turning movement counts

Use an optimization model to develop timing plan(s)

Field implementation-fine tuning

Availability of HR Data

Assessment of existing operations – Identify problems
  - Progression (% arrival on green)
  - Capacity (V/c ratio)

Determine and Implement Actions

Evaluate performance
Example: Detector Data Collection Set-up

Danville Intersection
Peak Period 4-7 pm: Volumes/Timing

Total volume (veh/15 minutes)

Approach Volume (veh/15 min)

Turning movements--Leg 2 (veh/15 min)

MAIN STREET: Phases 1,2,5,6
Analysis: Trade-offs between Signal Phases based on V/C

15 min V/C and LOS
Improving Signal Settings Plans

Application: Robust Timing Plans

Total volume at Test Intersection (#veh/min)

Which Volumes to use for the **three** timing plans over the day?

Data Clustering
New vs. Existing Signal Timing Plans

- New timing plans reduces the intersection signal delay by 10% on average*

*Intersection signal delay estimated by Synchro