TRAFFIC SIGNAL TIMING
FOR LOCAL MUNICIPALITIES

OHIO TRANSPORTATION ENGINEERING CONFERENCE 2018

EDWARD WILLIAMS, PE, PTOE
TEC VICE PRESIDENT
Signal Timing Projects: Benefits Vs. Costs

**Benefits**
- Increased safety
- Reduced delay
- Reduced emissions
- Fuel savings

**Costs**
- Data collection (crash records, travel time, equipment inventory)
- Equipment upgrades
- Timing study
TEC TIMING STUDY LOCATIONS

MORE THAN 1,000 SIGNALS RETIMED

20 TO 1 COST-BENEFIT RATIO

CORRIDORS SHOW REDUCTIONS IN DELAY OF 10-40%
VARIETY OF MUNICIPAL RESPONSIBILITIES
WHO’S IN CHARGE?

SMALL COMMUNITY
• Administrator or Public Works

MEDIUM COMMUNITY
• May have Signal Inspector

LARGE COMMUNITY
• Engineering Dept.
EDUCATION

- Cycle Length
- Progression
- Pedestrians
- Clearances
- Splits
Controller Settings:
Standard Elements/Commonly Used

- Command box
- Phase settings
- Number of settings in a controller
CONTROLLER SETTINGS:
RARELY USED/“HIDDEN GEMS”

- Advanced pedestrian settings
- Step max
- Traffic responsive settings
- Coordination phase
- TBR vs. TTR
CASE STUDIES
CASE STUDIES:  
CITY OF WICKLIFFE, OHIO

East 305th Street and LAK-2

- Multiple intersections controlled by one controller
- Multiple overlapping movements
- Dynamic maximums
CASE STUDIES:
CITY OF WICKLiffe, OHIO

East 305th Street and LAK-2
CASE STUDIES:
CITY OF READING, OHIO

Ridge Road, Maple Drive, SR 126

Three intersections running off one controller

Complicated phasing
CASE STUDIES:
CITY OF READING, OHIO

Ridge Road, Maple Drive, SR 126

Ridge Road/Columbia Avenue & SR 126 WB & Furhman & Maple Phase Diagram

NOTE:
OLA: 4x6-8 – SB @ SR 126 WB Ramp
OLB: 2x3-8 – NB @ Furrman
OLC: 3x6-8 – SB @ Furrman
OLD: 3x4-6 – SB @ Maple
OLF: 3x4 – SB @ Maple

- Demand for SB at Furrman Phase 2 will create demand for SB Furrman Phase 4. D4 in the southbound lane is a call only stop bar detector that places a call to Phase 4. This detector stops extending Phase 4 after .01 seconds of green time.
- Controller must service Phase 4 before servicing Phase 1.
- Controller must go to Phase 3 to service Phases 8, 4, and 1.
- During Phase 2, demand for Phases 1, 4, and 8 is switched to Phase 3.
CASE STUDIES:
CUYAHOGA COUNTY, OHIO

SR 322

- Loop detector added to unsignalized side street
- Created gaps in Main Street traffic
CASE STUDIES:
CUYAHOGA COUNTY, OHIO

SR 322
CASE STUDIES:
VILLAGE OF CLEVES, OHIO
US 50 and Mt. Nebo Road

- 5-section signal heads needed
- Existing poles/spans cannot provide minimum clearance
- Railroad preemption needed at track crossing
- Existing cabinet too small
Case Studies:
Village of Cleves, Ohio
US 50 and Mt. Nebo Road
CASE STUDIES:
CITY OF MARIETTA, OHIO

Washington Street
CASE STUDIES:
CITY OF MARIETTA, OHIO
Fifth and Washington Street

No **all-red** interval

**Mechanical Controller**
Advance **WALK** desired

Existing **ASC2** cannot provide without major re-wiring
CASE STUDIES:
CITY OF GALLIPOLIS, OHIO
SR 7 & Smithers

Coordination not possible with existing Transyt1800EL controller

Controller changed out to ASC3
CASE STUDIES:
CITY OF GALLIPOLIS, OHIO
SR 7 & Smithers
CASE STUDIES:
VILLAGE OF ASHLEY, OHIO
E. High St. & US 42

Desire to add left-turn phase and blankout signs

Span wire on wood poles

ORDC project
CASE STUDIES:
VILLAGE OF ASHLEY, OHIO

E. High St. & US 42
CASE STUDIES:
CITY OF INDEPENDENCE, OHIO
Rockside Road and West Creek Road

5-section signal for left-turn phase

Permitted/protected by time of day
CASE STUDIES:
CITY OF INDEPENDENCE, OHIO

Westbound Rockside Road at West Creek Road
CASE STUDIES:
CITY OF WYOMING, OHIO
Springfield Pike and Charlotte Avenue

Coordination not possible with existing controller

Intersection rebuilt and controller changed
CASE STUDIES:
CITY OF WYOMING, OHIO
Springfield Pike and Charlotte Avenue
THANK YOU!

CONTACT INFORMATION

Edward Williams, PE, PTOE
Vice President
TEC Engineering, Inc.

Email: ewilliams@teceng.com
Ph: (513) 771-8828