

# Recommendation for City of Oberlin's Intersection Control Beacons



# What is a Flashing Beacon?



- A highway traffic signal with one or more signal sections that operates in a flashing mode.
- Provides traffic control when used as an Intersection Control Beacon (ICB) or it can provide warning when used in other applications.
- Shall be installed and used only at an intersection to control two or more directions of travel.



# Where are ICB's in Oberlin?



- E. Lorain - FAA entrance
- E. Lorain - Oberlin Rd.
- Oberlin Rd. - E. College
- W. Lorain - Woodland

# City of Oberlin Codified Ordinance

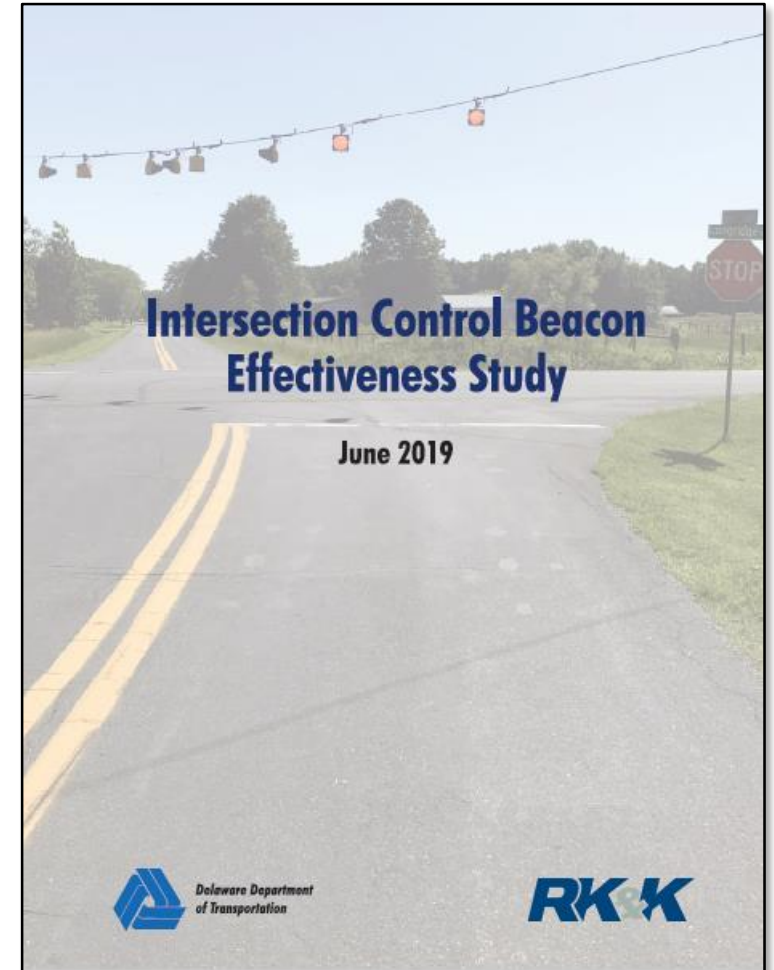
## 305.03 AMENDMENTS BY EXECUTIVE ORDER.

Amendments to the Traffic Control Map and the Traffic Control File shall be made by executive order of the City Manager and shall be in full force and effect immediately upon issuance, unless disapproved by Council. Council shall be promptly advised on all such orders. Proper signs and markings shall be placed at the time of the issuance of the executive order, and such executive order shall be recorded on the official Traffic Control Map and official Traffic Control File.

(Ord. 79 AC. Passed 7-21-58.)

# ICB Effectiveness?

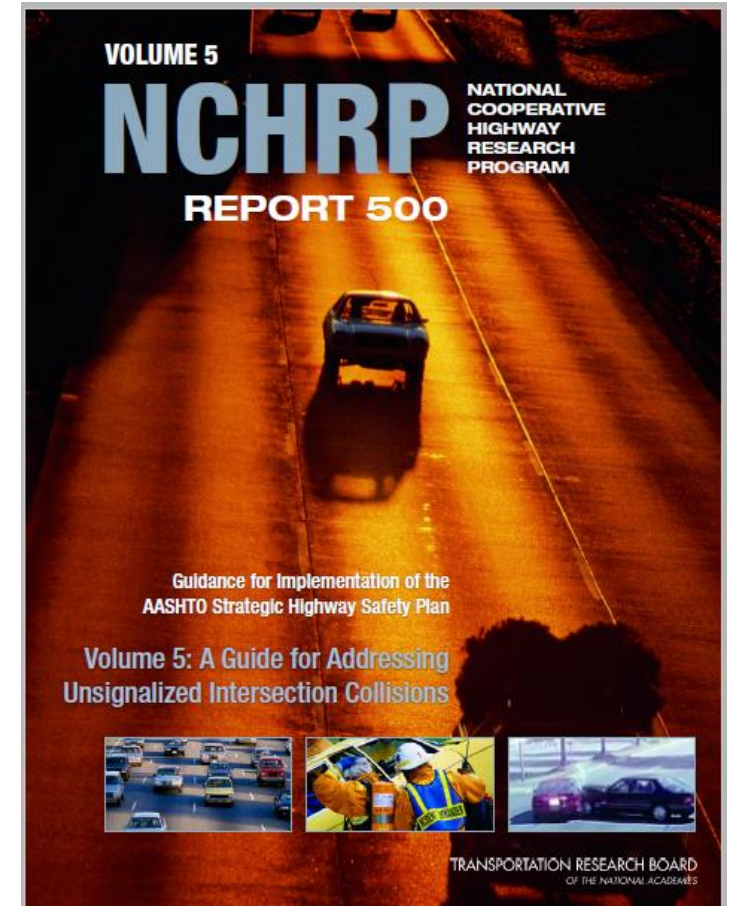
- California, Florida, Iowa, Minnesota and South Carolina all found no significant reduction in crashes.
- Some motorists are confused by ICBs and believe the ICB indicates that all of the approaches are stop controlled.
- Because of potential confusion, Minnesota removed all of the state's ICBs.





# ICB Effectiveness?

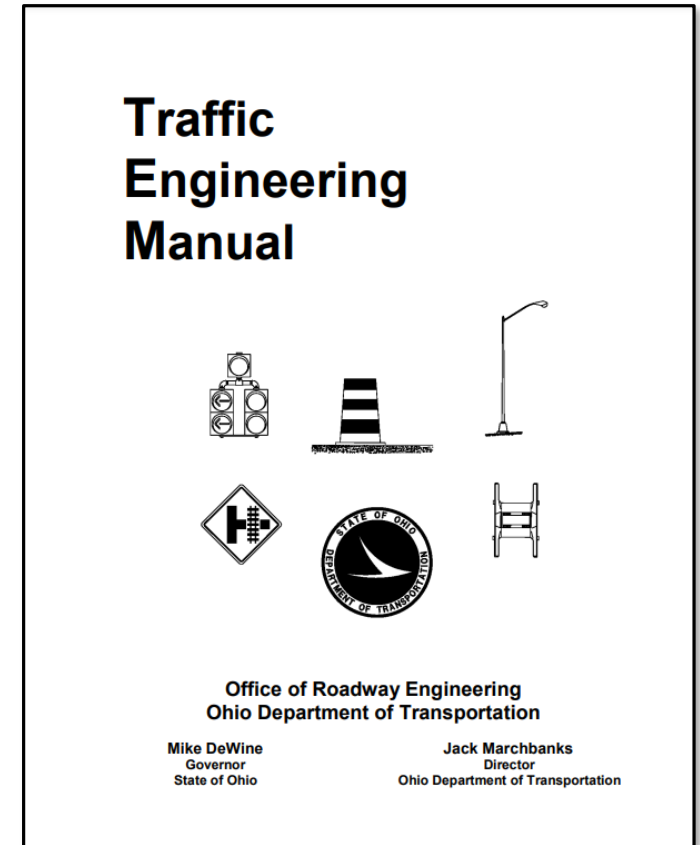
- California found that overhead yellow-red flashing beacons did not significantly reduce the number of fatal crashes at stop controlled intersections.
- Flashing beacons should not be overused. Their effectiveness is attributed in part to their relative uniqueness (i.e., they are not typically found at every stop-controlled intersection).
- Ohio found that flashing beacons generally reduced vehicular speeds on the major road, particularly at intersections with sight distance restrictions, but the flashing beacons were not necessarily effective in reducing stop sign violations or accidents.



# ODOT TEM – 201-3.4

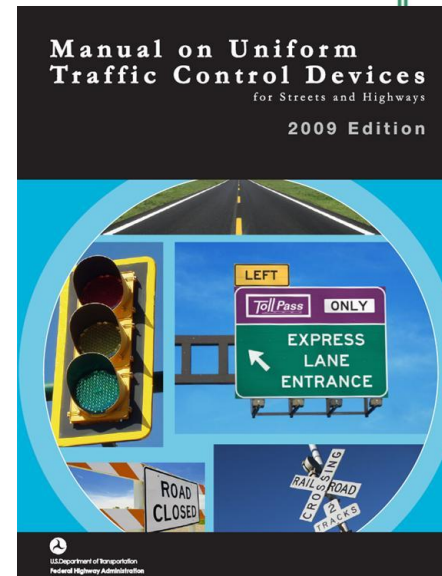
## *ICB NOT RECOMMENDED*

“Studies have suggested that the overhead intersection control beacons have been misinterpreted as indicating a four-way stop at locations where there was only a two-way stop, thereby causing drivers to pull out in front of approaching vehicles because they assumed those vehicles would stop. Therefore, at intersections along ODOT maintained highways, installation of overhead intersection control beacons are not recommended unless there are other overriding circumstances where engineering judgment deems them to be necessary. Rather, stop sign controlled approach improvements should follow the guidance in Table 297-3.”



# Where should ICBs be used?

- “Intersection Control Beacons may be used at intersections where traffic or physical conditions do not justify conventional traffic control signals but **crash rates indicate the possibility of a special need.**”





# Crash Data

- Used ODOT's GIS Crash Analysis Tool (2011 to 2022) to analyze crashes within a 250' radius.

Intersection	Crashes in Search Area	Crashes in Intersection
W. Lorain/Woodland	7	3
E. Lorain/FAA	3	2
E. Lorain/Oberlin Rd	31	29
E. College/Oberlin Rd	7	3

## E. Lorain and Oberlin Rd – A Closer Look

Year	Number
2012	2
2013	2
2014	2
2015	1
2016	1
2017	4
2018	3
2019	2
2020	4
2021	5
2022	3

- 29 Crashes in the intersection
- 23 involved failure to yield
  - 9 southbound
  - 8 northbound
  - 6 not stated
- 14 reports specifically stated failure to yield after stopping.
- 3 incidents specifically stated driver was confused by the intersection thinking it was a 4-way stop.



# Peer Review and Collaboration

- June 27 – Oberlin City Engineer, prepared a report of findings and recommendations to remove ICBs.
- July - Public Works contracted with GPD, an A&E firm with Professional Traffic Operations Engineers (PTOE) on staff to perform a peer review of the report.
- August 7 - GPD agreed with the report's findings and recommendations with comments.
- August 16 – Met with the City Manager, Fire Chief, Police Chief, OMLPS, and GMD to discuss the findings, get consensus and refine the recommendations.



## Recommendation for City of Oberlin's Intersection Control Beacons June 27, 2022



### INTRODUCTION

A Flashing Beacon is a highway traffic signal with one or more signal sections that operates in a flashing mode. It can provide traffic control when used as an Intersection Control Beacon (ICB) or it can provide warning when used in other applications. An ICB consists of one or more signal faces directed toward each approach to an intersection. Each signal face shall consist of one or more signal sections of a standard traffic signal face, with flashing CIRCULAR YELLOW or CIRCULAR RED signal indications in each signal face. They shall be installed and used only at an intersection to control two or more directions of travel.

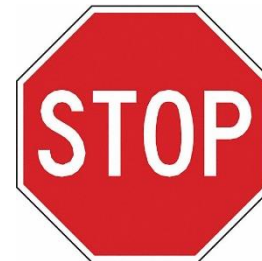
There are four ICBs in the City of Oberlin. All flash red in minor direction and yellow in the primary direction. They are located at W. Lorain and Woodland Ave., E. Lorain and the FAA entrance, E. Lorain and Oberlin Rd, and E. College and Oberlin Road.

# Replacement Countermeasures

## W. Lorain/FAA



- Review FAA plans to remove island:
  - Narrow exit with a tighter curb radius (30') to bring exiting traffic closer to a 90° degree angle to provide better visibility.
  - Stripe the exit lanes with left turn only and through and right turn arrows.



At Exit



West of FAA – eastbound  
East of Artino - westbound



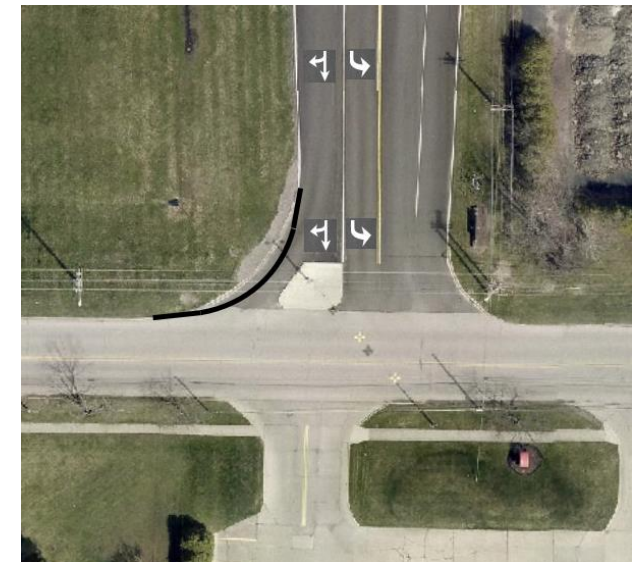


# Peer Review

## E. Lorain Street/FAA Entrance

- We concur with recommendations.
- Lining up the FAA and IGA driveways as much as possible is a good idea.
- Adding stop signs and Cross Traffic Does Not Stop are good ideas.
- Existing pole holds two streetlights. The City should consider relocating the streetlights if the lighting is needed at the intersection.

Note: After sharing the report and recommendations, on Sept. 13<sup>th</sup>, FAA confirmed that they had no further questions and no objections to the proposed decommissioning of the ICB at this location.



# Replacement Countermeasures

## E. Lorain/Oberlin Rd



- Install LED Enhanced stop signs (northbound and southbound).
- Install LED Enhanced advanced intersection warning signs (eastbound and west bound)



LED Enhanced

# Traffic Engineering Manual

## Table 297-3

STOP Sign Controlled Approach	Non-ODOT Maintained (i.e., County or Township Road)		
	5 or fewer	6 to 8	9 or more
Single STOP Sign	Shall be installed		
Dual STOP Signs		Should be installed	
Dual Stop Ahead Signs		At the discretion of the County or Township	
Oversized STOP Signs		At the discretion of ODOT District	
Flashing STOP Signs			Should be installed



# Peer Review

## E. Lorain Street/Oberlin Road

- We concur with the recommendations to remove the ICB.
- Two lane approach to a stop condition seems to add to confusion for the drivers and is generally something we have tried to avoid recommending. Two vehicles at the intersection simultaneously could impede sight lines. Is there a need for these the two left turn lanes? Do the turning movement counts support the existence of these turn lane?

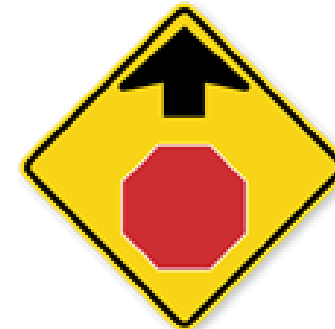
Note: The left turn lanes were added after a 2000 Traffic Analysis recommended the turn lanes to improve the level of service at this intersection. GPD did not have this report.



# Replacement Countermeasures E. College/Oberlin Rd



- Install “CROSS TRAFFIC DOES NOT STOP” on existing STOP signs.
- Install Graphical Stop Ahead Sign for Northbound approach.





# Peer Review

## College Street/Oberlin Road

- We concur with adding “Cross traffic does not stop” signage.
- NB Oberlin recommendation for a solar powered Stop sign is a good idea. However, prior to installing the solar powered sign, we would suggest a simple Stop Ahead advanced warning sign.
- There are sight distance issue with NB traffic (stop condition) seeing WB approaching traffic due to trees; even though no crashes were recorded for this scenario.
- SB Oberlin seems to have a sight distance issue as well, with the angle of the road, seeing WB traffic approaching. Without the benefit of intersection traffic counts to evaluate and solely considering intersection geometrics consideration should be given to switching the stop control from Oberlin Road to College Street. Upon initial review, it would appear this would address any intersection sight distance concerns.
- Installing chevrons for the curve is a good idea.

# Stop Locations Considerations

- North Bound
- South Bound
- East Bound
- West Bound
- Stop N/S more predictable
- Stop E/W



# Public Outreach

Prior to de-commissioning each intersection control beacon, the Public Works Department will provide detailed advance notice to key stakeholders (FAA, NACS, IGA, OC for example) to share with their employees, contractors and vendors. The Department will also work with the City's Communications Office to disseminate this information more broadly to the Community. This is expected to include but is not limited to the City's web-site, News-Tribune and Oberlin Review outreach, Cable Co-op and social media.



Questions?

# Replacement Countermeasures W. Lorain/Woodland



- Replace old style orange ped sign with FYG sign.
- Add advance warning signs





# Peer Review

## W. Lorain Street/Woodland Avenue

- We concur with upgrading the signage to Fluorescent Yellow Green.
- This location appears to be a pedestrian crossing for the school. Has consideration been given to installing an RRFB if pedestrian crossing volumes are significant?
- The EB W11-2 sign should be located at the actual crossing. Currently, it is in advance of the crossing. If not located properly, this can be deceptive to the driver as to exactly where the peds are crossing.

# Speed Zone Study

- Statutory speed limits are established by the Ohio Revised Code (ORC).
- Most drivers tend to drive at a speed with which they are comfortable.
- Raising or lowering the speed limits does not have a significant effect on speed.
- A **speed zone** is a section of roadway with a different posted speed limit than the statutory speed limit.
- ODOT must approve speed zones that lower speed limits supported by a traffic study.



# Speed Zone Study

- Until July 2021 Factors in determining speed zone:
  - Development of area
  - Roadway features
  - Traffic volume
  - Accidents
  - Speed vehicles are traveling – 85th percentile and 10 mph pace.
- 2012 speed study on Lorain (Prospect to Berger Court) supported the posted 35mph speed limit – state route through a municipality outside the CBD.
- Speed Zone Criteria changed in July 2021 to consider the 50<sup>th</sup> if there is a high presence of vulnerable road users (Pedestrians, Cyclists, Amish Buggies, etc.)

# Speed Zone Study

- Recognizing the changes in the procedure and with the construction of the elementary school on Park Street, the City hired GPD to conduct a speed zone study on Lorain between Cedar St and Park Street.

Table 2: Speed Evaluation Summary				
Segment	Posted Speed Limit (mph)	Calculated Speed Limit (mph)	USLIMITS2 Speed Limit (mph)	Recommended Speed Limit (mph)
Cedar Street to Professor Street	35	34	25	25
Professor Street to Main Street	35	35	25	25
Main Street to Pleasant Street	35	31	25	25
Pleasant Street to Park Street	35	32	30	25



Hopefully.