

HAMILTON CITY WIDE SIGNALS AND FIBER PROJECT

PID 113302



TEC
ENGINEERING, INC.

Andrea Harth, PE, PTOE, RSP
Vice President of Operations
TEC Engineering, Inc.

Traffic Engineering Workshop
June 5, 2024

City of Hamilton



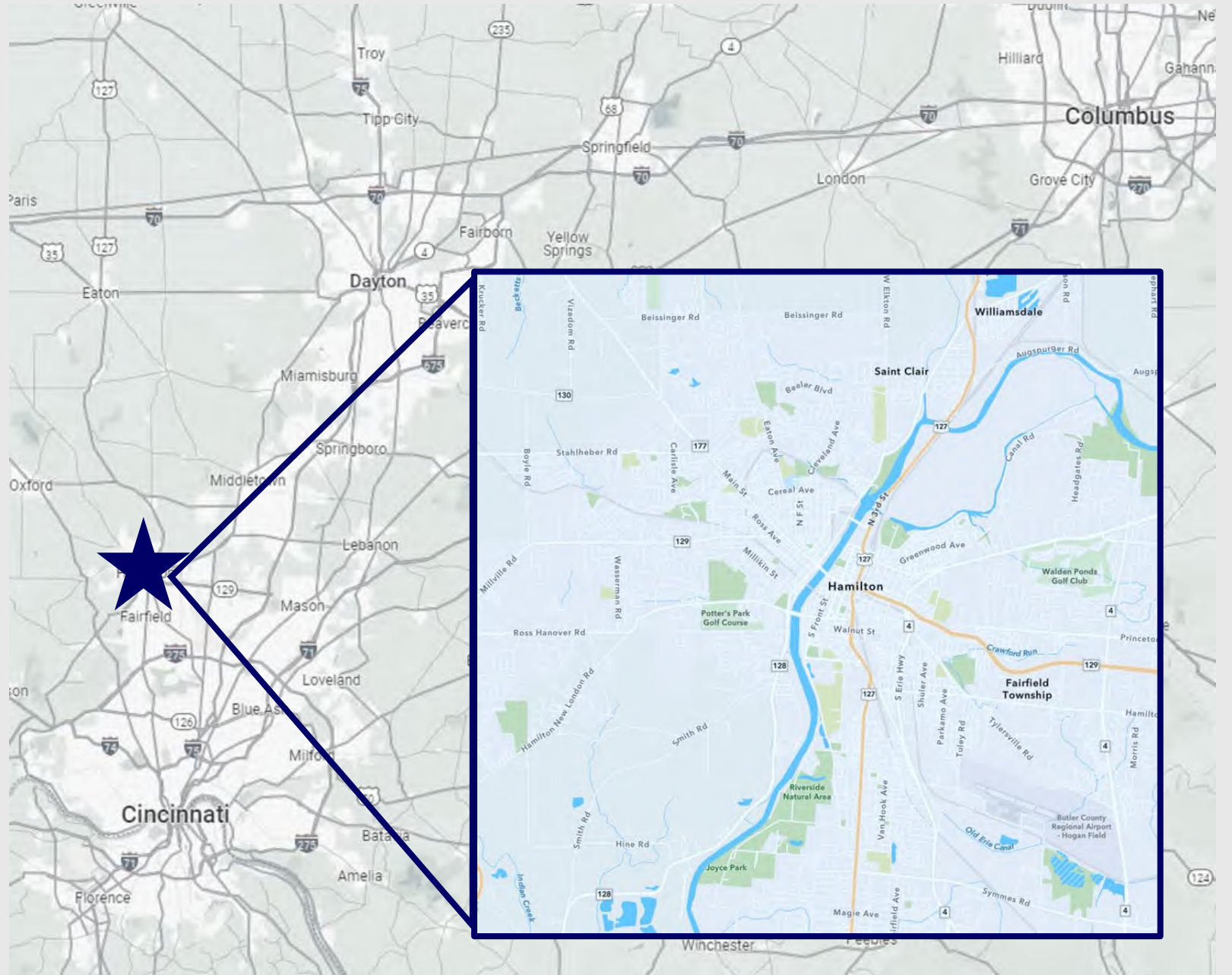
Population:
63,399 (2022)



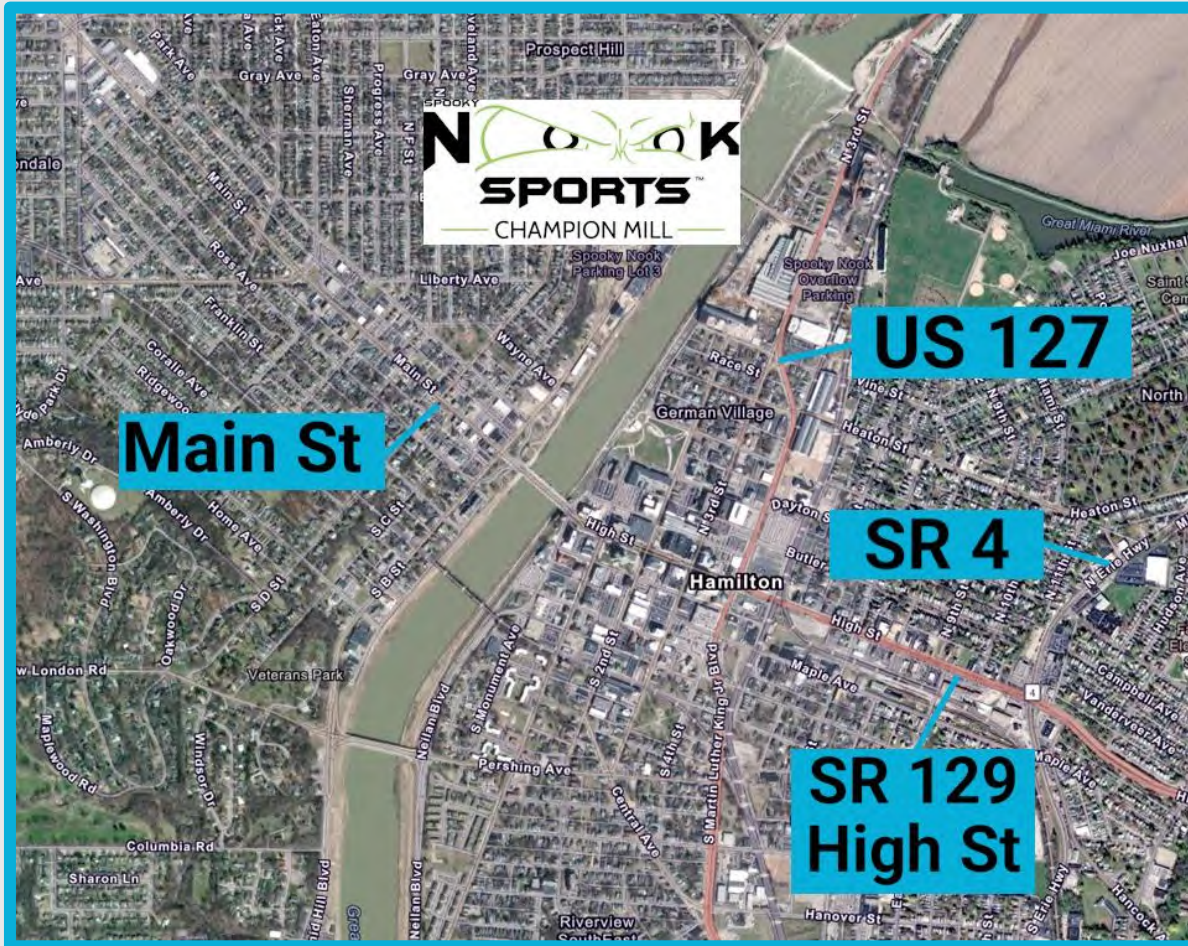
20 miles north
of Cincinnati



Located on the
Great Miami River



Project Background



Existing Traffic

Major Arterials AADT

- High Street – 43,000 vpd
- Main Street-21,100 vpd
- SR 4/Erie - 20,000 vpd
- US 127 – 17,400 vpd

Spooky Nook – Champion Mill

- 65,000 sq ft sports complex
- Attracts up to 20,000 trips on tournament weekends

Downtown Redevelopment

- New restaurants, hotels, etc.

Purpose & Need



**IMPROVE
TRAFFIC
FLOW**



**THROUGH
THE USE OF
TECHNOLOGY**



**TO MINIMIZE
ROADWAY
WIDENING**

Project Origin



Original Estimate: (2019) \$5,251,094



OKI Funding: \$4,200,875 (80%-20%)



Construction Cost (2021): \$5,593,996

Final Cost (2024): ~ \$5,775,000

Project Objectives

1

**Extend Fiber
Optic Networks**

2

**Disseminate
Traffic
Information**

3

**Update
Equipment**

4

**Allow for
Emergency
Response**

Project Team

Designer: TEC Engineering, Inc.

Contractor: Capital Electric

Supplier: Path Master

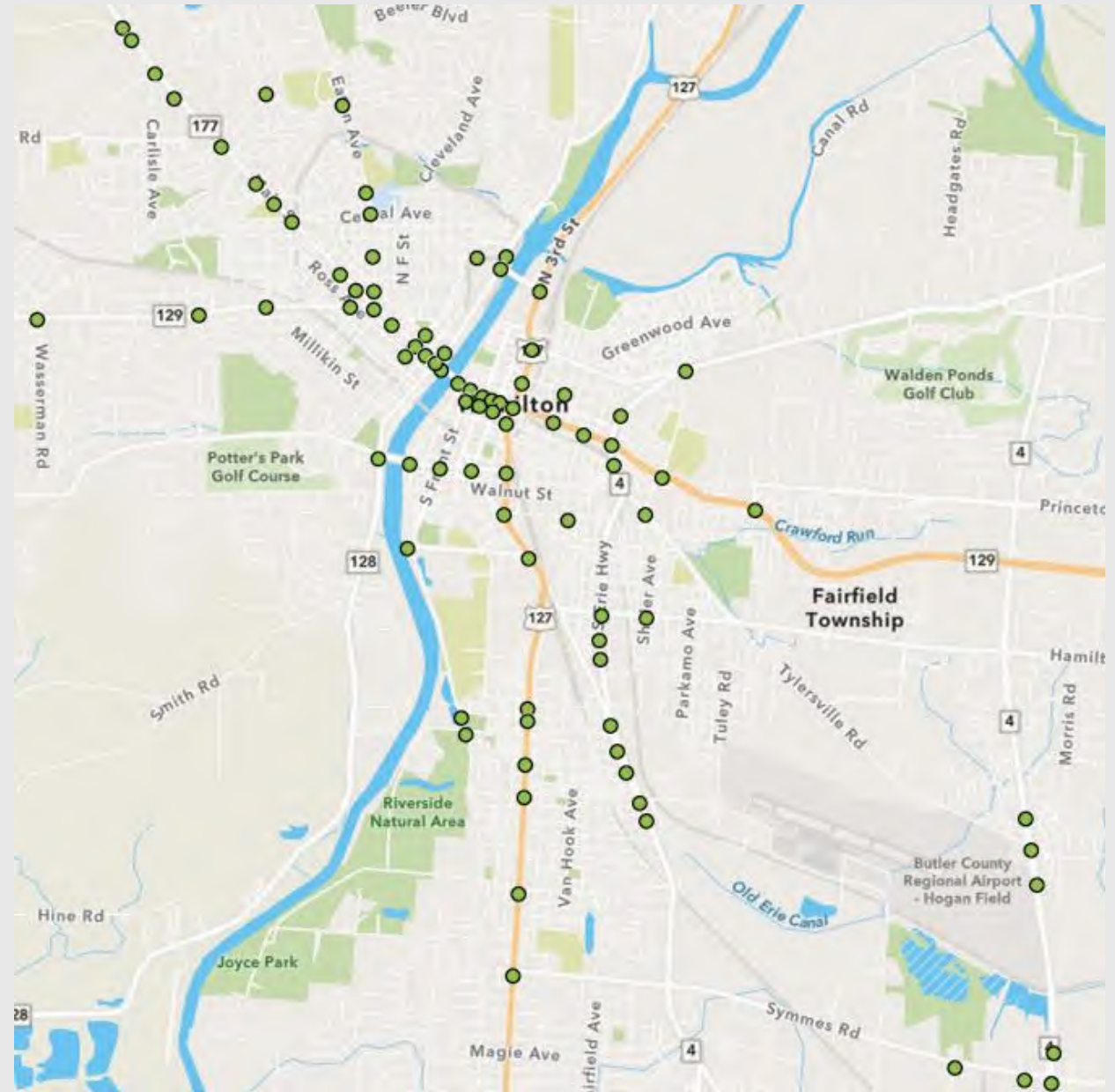
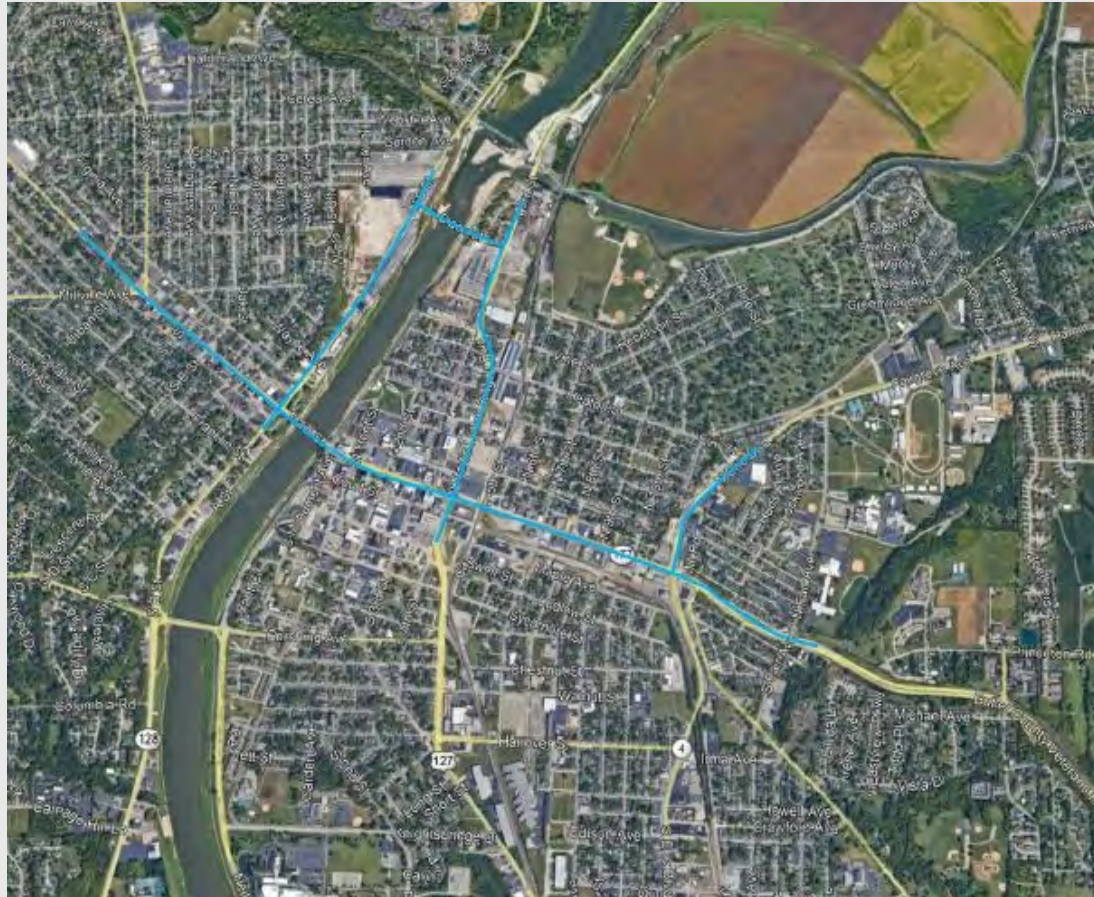
Construction Admin/Inspection: CTL



**All worked closely
with City staff**

Project Area

City Wide with Priority Corridors



Work Types

Signal Upgrades

ITS Equipment

Fiber Optic Interconnect

Curb Ramps

Signal Upgrades

City Wide

- Signal head replacement at 19 intersections
- Cabinet replacement at 24 intersections
- Controller replacement at 46 intersections



Priority Intersections

- New detection (video and radar)
- Battery backups



ITS Equipment

**Central Based
Signal System**

CCTV Cameras

**Adaptive Control at
33 Intersections**

**Priority System-
Emergency/Transit
Priority**

**Travel Time
Determination**

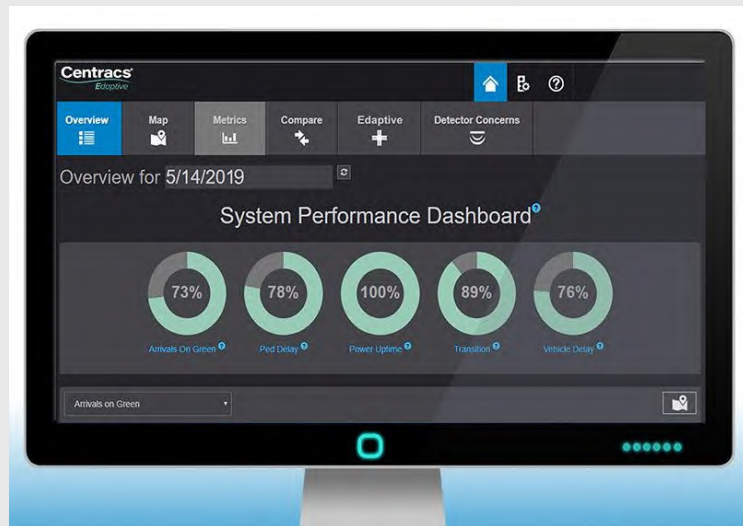
DMS Integration

New ITS Software

A System Engineering Analysis was required for FHWA approval of the adaptive and priority signal software.

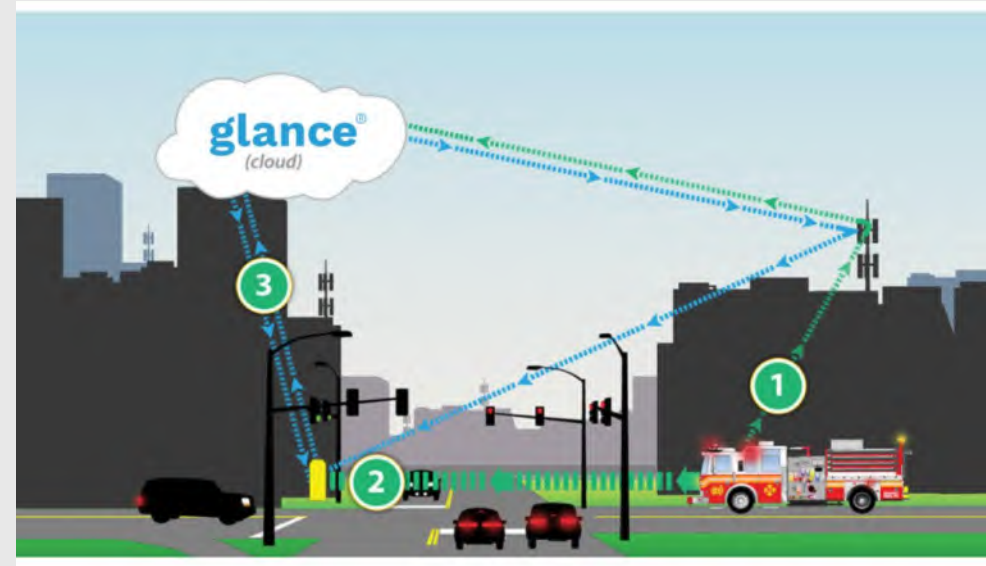
Centracs Edaptive

- Adaptive signal control
- Analysis of signal timing
- Required new vehicle detection – stop bar and advanced zones



AI Preemption

- AI Glance



Fiber Optic Network

- Started with the City's existing fiber
- Worked with the City to utilize existing splice enclosures
- All fiber patching done in the cabinets to eliminate new splice enclosures
- Hamilton completed all trunk line splices



Construction Timeline



Project Bid Date: September 2021



**Spooky Nook Champion Mill Opened:
Fall 2022**



Substantially Complete- April 2024



Edaptive Online –Expected June 2024

Control Center

High St & Monument Ave - 35 (Eos) - Sec High St

High St & Front St - 36 (Eos) - Sec High St

High St & Second St - 37 (Eos) - Sec High St

Mode / Pattern	Coordination	Time	Preempt	Alarms
Disabled	Actual	14:04:41		
NONNONN	110	134		
TOD/10	45	29		

Phase	Actual	Prog	On	Off	Call	Next
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0

Unit control is in lineback mode

Ring 1: Green Flt
Ring 2: Extension

Alert
Name: Cabinet Door Open
Description: Alarm 1 ON
Device: Signal Pleasant Ave & Hooven Ave

Map View(2)

Map showing street layout with traffic light locations marked by red and green icons. Streets include Main St, High St, and various side streets.

Site Login View 1 X +

Live Recorded

Search...

- Main & Eaton & Millville - NE
- Main & Eaton & Millville - SE
- Main & Eaton & Millville - SW
- Main & B - East
- Main & B - South
- Main & B - West
- Main & B - North
- Main & C - SW
- Main & C - NW
- Main & C - NE
- Main & C - SE
- Main & D - South (Gazebo)
- Main & D - West
- Main & D - North
- Main & D - East
- Main & E - SE
- Main & E - SW
- Main & E - NW
- Main & E - NE
- Main & F - North
- Main & F - East
- Main & F - South
- Main & F - West
- Bailey Square - Walnut - North
- Bailey Square - Walnut - East

Journal Square-North - 4 - NW

High & Front - NE

High & MLK - PTZ

High & MLK - SE

High & 2nd - PTZ

High & 2nd - North

High & East - West

Main & Eaton & Millville - SE

Main & B - West

Main & C - SE

Main & D - West

Main & E - NW

Main & F - West

Front & Pershing - NW

Main & D - North

Main & C - NE

Type here to search

81°F Partly sunny 2:10 PM 5/22/2024

Supplemental Project

Dynamic Message Sign (DMS)



In the news...

New traffic control system installed at Hamilton's priority intersections

Twenty-seven in place now with 70 non-priority intersections getting them this summer.



NEWS
By Michael D. Pitman
Updated Jan 21, 2023

'Smart' traffic-signal system coming to Hamilton to help flow



Traffic signals throughout Hamilton to get upgrades ahead of Spooky Nook opening



< Caption

Credit: Nick Graham



Hamilton's smart traffic signal installation getting closer in \$5.2 million project



HAMILTON
By Mike Rutledge
Updated July 9, 2021



New messaging board to alert Hamilton drivers to delays and detours



< Caption

Credit: Nick Graham

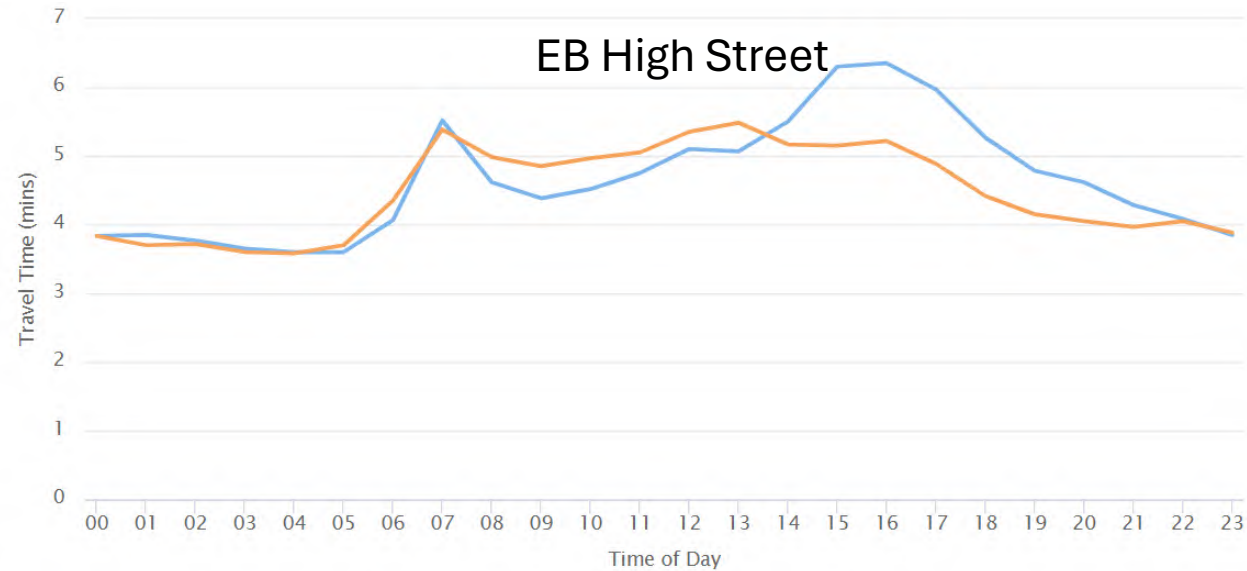
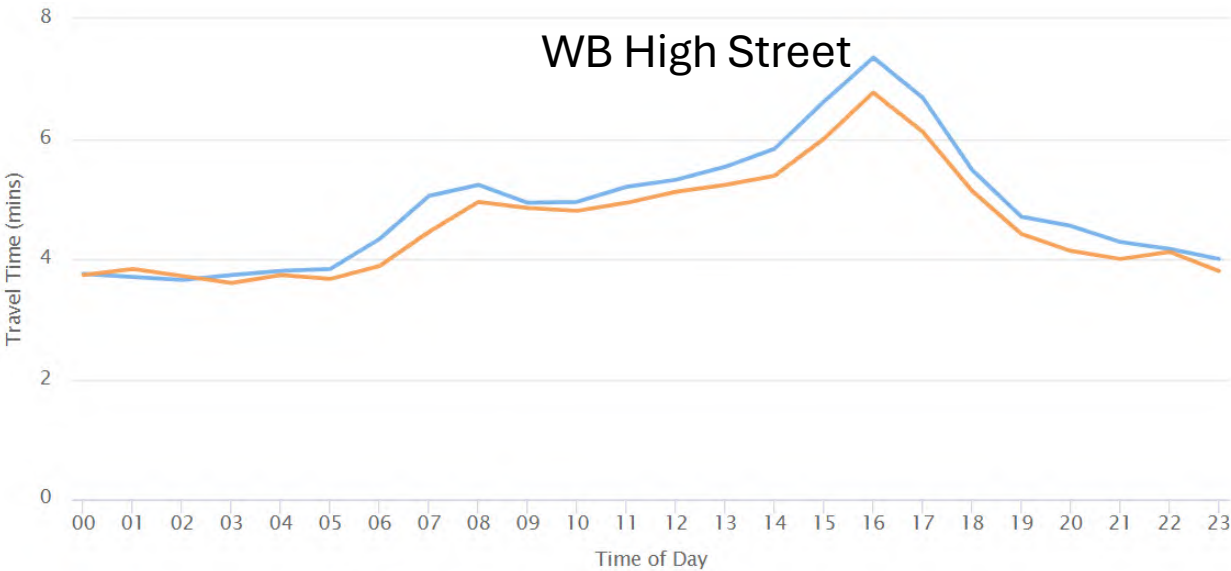
NEWS
By Michael D. Pitman
Updated Jan 21, 2023



Impact on Traffic

Travel Time

High Street from Hampshire to B Street



09/01/2020 - 09/30/2020 (Tu,We,Th) 5th and 95th Percentiles 25th and 75th Percentiles
05/01/2024 - 05/31/2024 (Tu,We,Th) 5th and 95th Percentiles 25th and 75th Percentiles

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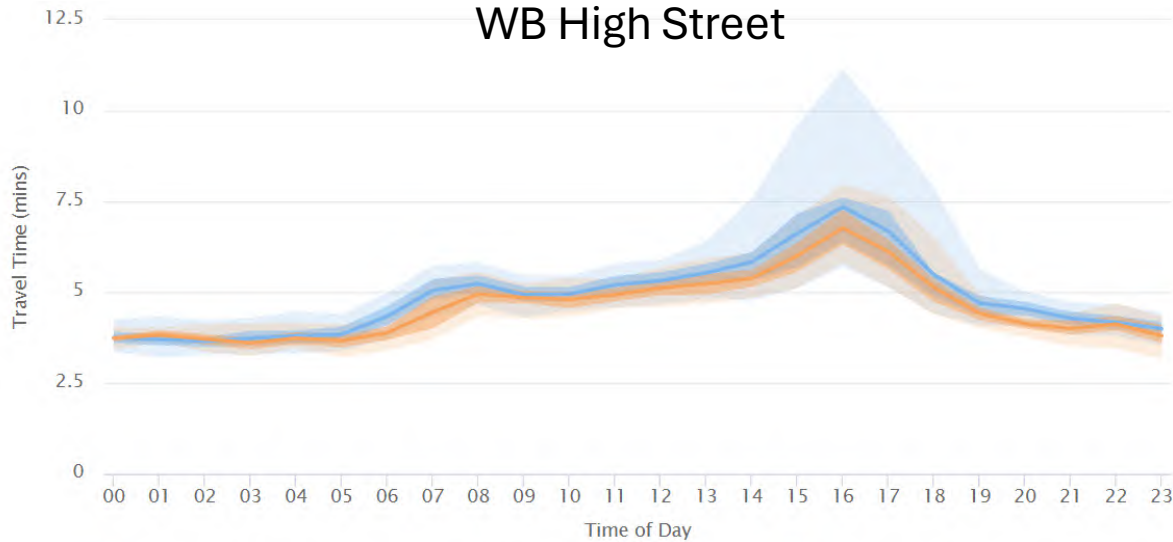
ODOT Counts 9/21/20 - 42,806 vehicles
7/24/23 - 48,692 vehicles

Impact on Traffic

Travel Time

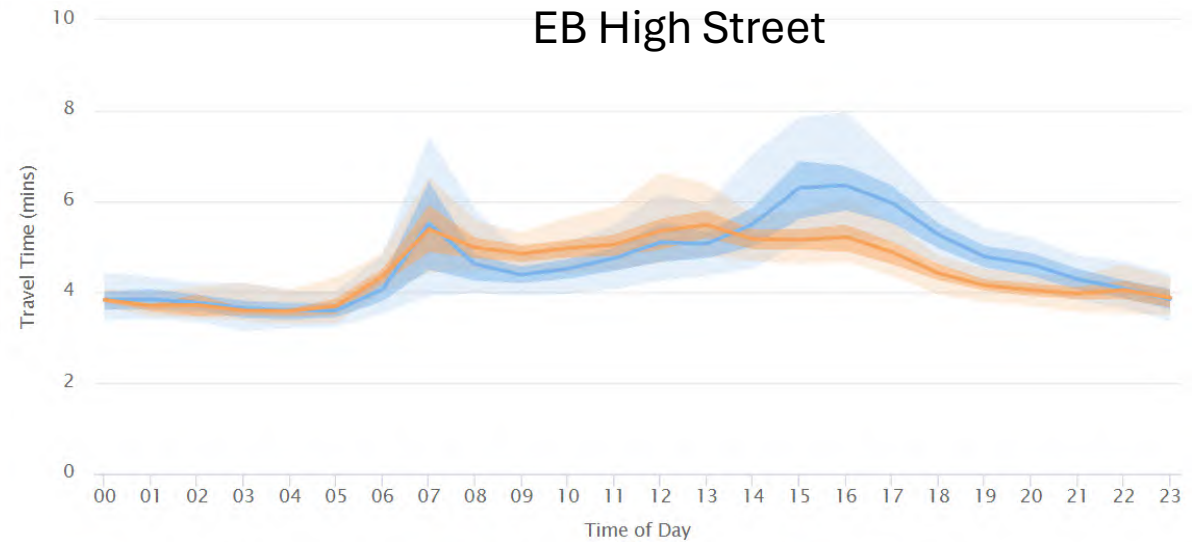
High Street from Hampshire to B Street

WB High Street



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EB High Street



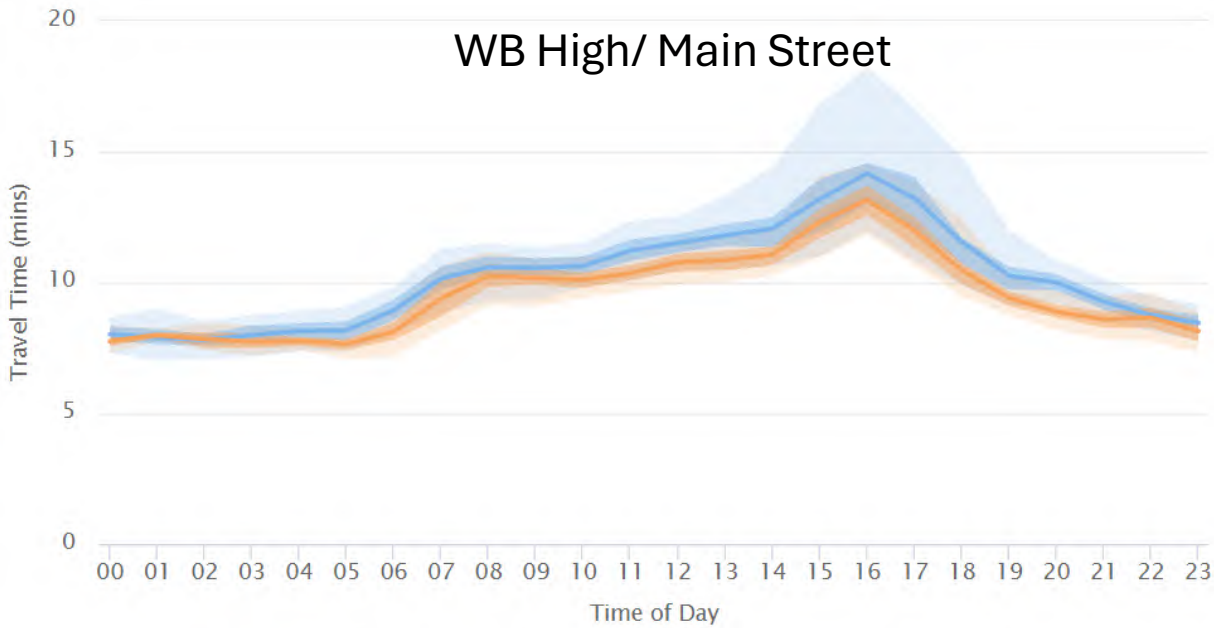
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Impact on Traffic

Travel Time

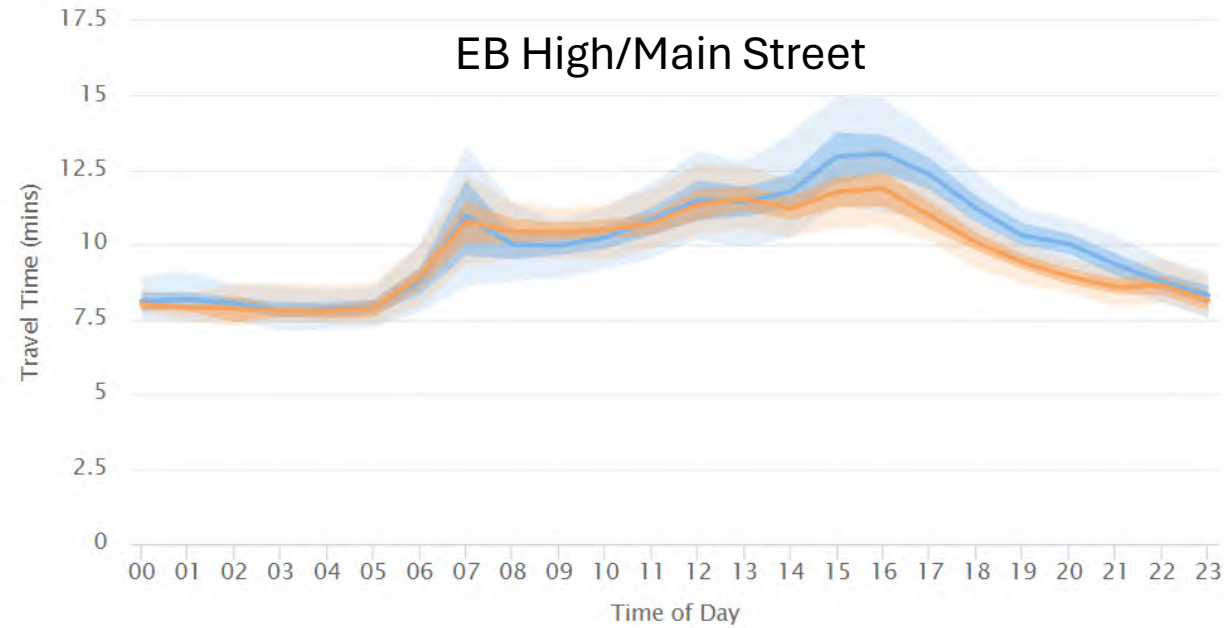
High/Main Street from Hampshire to
NW Washington Street

WB High/ Main Street



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- 25th and 75th Percentiles
- 5th and 95th Percentiles
- 05/01/2024 - 05/31/2024 (Tu,We,Th)
- 25th and 75th Percentiles
- 5th and 95th Percentiles

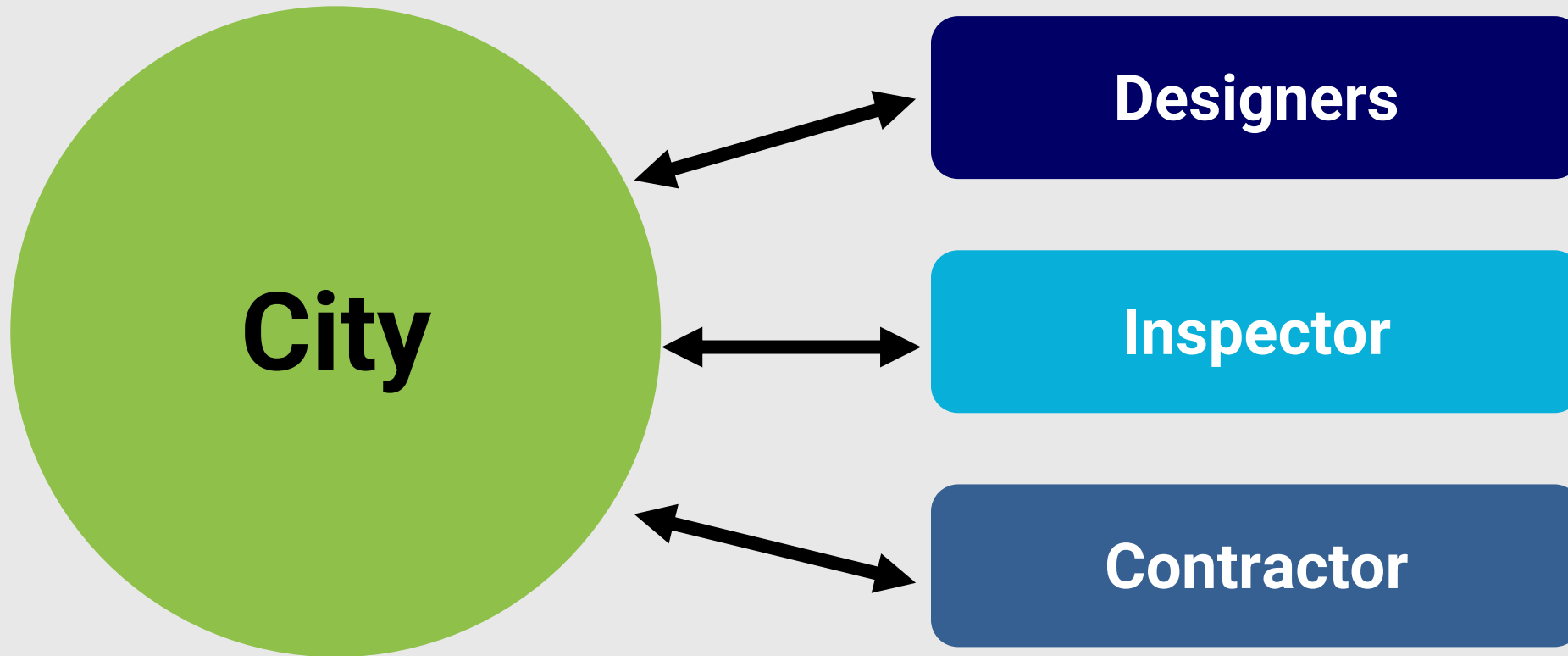
EB High/Main Street



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- 5th and 95th Percentiles

Secret to Success

COMMUNICATION



QUESTIONS?

Presenter:

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