

LOCAL TECHNICAL ASSISTANCE PROGRAM

DROP-IN

SMALL ROUNDABOUT WITH A BIG IMPACT

MARCH 7, 2024



pennsylvania

DEPARTMENT OF TRANSPORTATION

LOCAL TECHNICAL ASSISTANCE PROGRAM

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PRESENTER INFORMATION

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ATTENDEE OVERVIEW GUIDE

(a) Mute and unmute yourself: Points to the microphone icon in the top-left toolbar.

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(c) Download handouts: Points to the 'Handouts: 2' section, which lists 'Audio-Country-List-2020.pdf' and 'Go-To Webinar Handbook_GTW_060420 (1)...'.

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(c) Download handouts

(d) Ask questions



Waiting to view Liz Davis's screen.

Next slide has descriptions for a-d.

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(c) Download handouts: Points to the question mark icon in the top-left toolbar.

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ATTENDEE OVERVIEW GUIDE

(a) Mute and unmute yourself: By default, all attendees are muted when they join a webinar. If the organizer unmutes you, you can click the Mic icon to unmute yourself. To grab the organizer's attention, raise your hand or ask a question.

(b) Raise your hand: You can grab the organizer's attention by raising your hand using the Hand icon. This will notify the organizer that you are requiring attention.

(c) Download handouts: If the organizer uploaded handouts, you can download them to your computer or Android device. If you're on an iOS device, you can preview them in the Safari app..

(d) Ask questions: You can ask the organizer questions at any point during the webinar. Once the question is answered, it will display in the Questions pane. If you do not see the Questions pane, the organizer may have disabled the feature.

Answer polls: At any point during the webinar, the organizer may launch a poll. This can be a multiple choice, scale rating, or short answer. Once you're done answering the poll, click Submit to send your answer to the organizer.







HANDOUTS

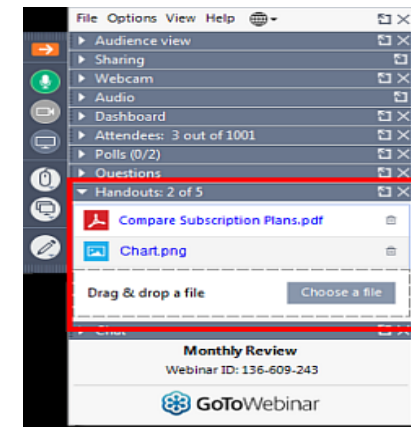
- <https://gis.penndot.pa.gov/ltap/>, Training Descriptions
- Click on the course description and scroll to the bottom to download handouts.

Handout Upload: No file chosen

Course Handouts :

#	File Name	Date	Download	Delete
1	00.ClassWorkbook_2021-01-13.pdf	1/13/2021 10:23:00 AM		
2	01. Handout_ 1.pdf	1/13/2021 10:23:00 AM		

On the GoToWebinar Panel: Expand the “Handouts” pane, click on handout, download and open in browser.



LTAP

Local Technical Assistance Program

Types of Services

Training

- In-Person & Virtual
- Road Shows

Technical Support Services

- Onsite
- Phone/email



All Services are
FREE to
Municipalities.



The LTAP website has course listings, newsletters, tech sheets, webinars, and drop-in announcements.

Electronic copies of the course workbook and handouts are under each training description. You may download them 24/7.

<https://gis.penndot.gov/ltap/>

Logged in as RVESNIC

pennsylvania
DEPARTMENT OF TRANSPORTATION
LOCAL TECHNICAL ASSISTANCE PROGRAM

Home LTAP Tools My Tools Administrative Tools Reports Help Sign out

My Training Schedule
Upcoming training, completed training and completion certificates

My Technical Assistance Requests
Information on your current and past tech assist requests

My User Data and Roads Scholar Status
Update your user information, view Roads Scholar status, and print certificates

Register for Training
Classes, Drop-Ins, Webinars and Workshops

Request Technical Assistance
Have a technical expert evaluate your transportation issue and provide potential solutions

Resources and Technical Information
Resources to assist with safety and maintenance topics

All services are free to municipalities

LTAP Programs

About LTAP Roads Scholar Program LTAP Resources Training Descriptions Why do I need an Account?

About LTAP

Build a Better Mousetrap
INNOVATION CHALLENGE

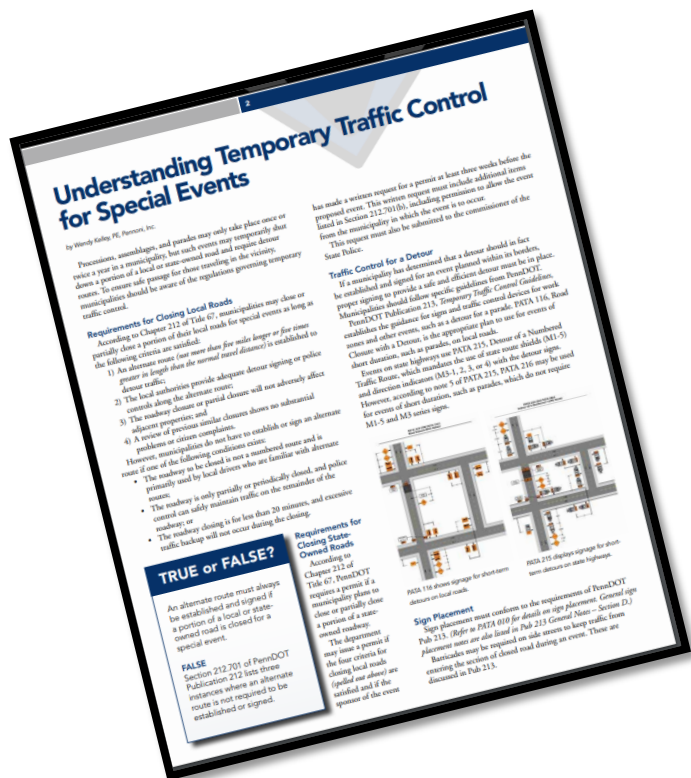
Upcoming Training

08:00 AM
30 JAN
TRAFFIC SIGNALS BASICS (RS2-S33-D1) VIRTUAL PA



RESOURCES

Quarterly LTAP publishes a newsletter and tech sheets. Email LTAP to be added to the newsletter list. Electronic copies are on the LTAP website.



Pennsylvania's Roundabouts

Jeff Bucher, P.E.
Chief

Highway Design & Technology Division
Roundabout Coordinator

3/7/2024

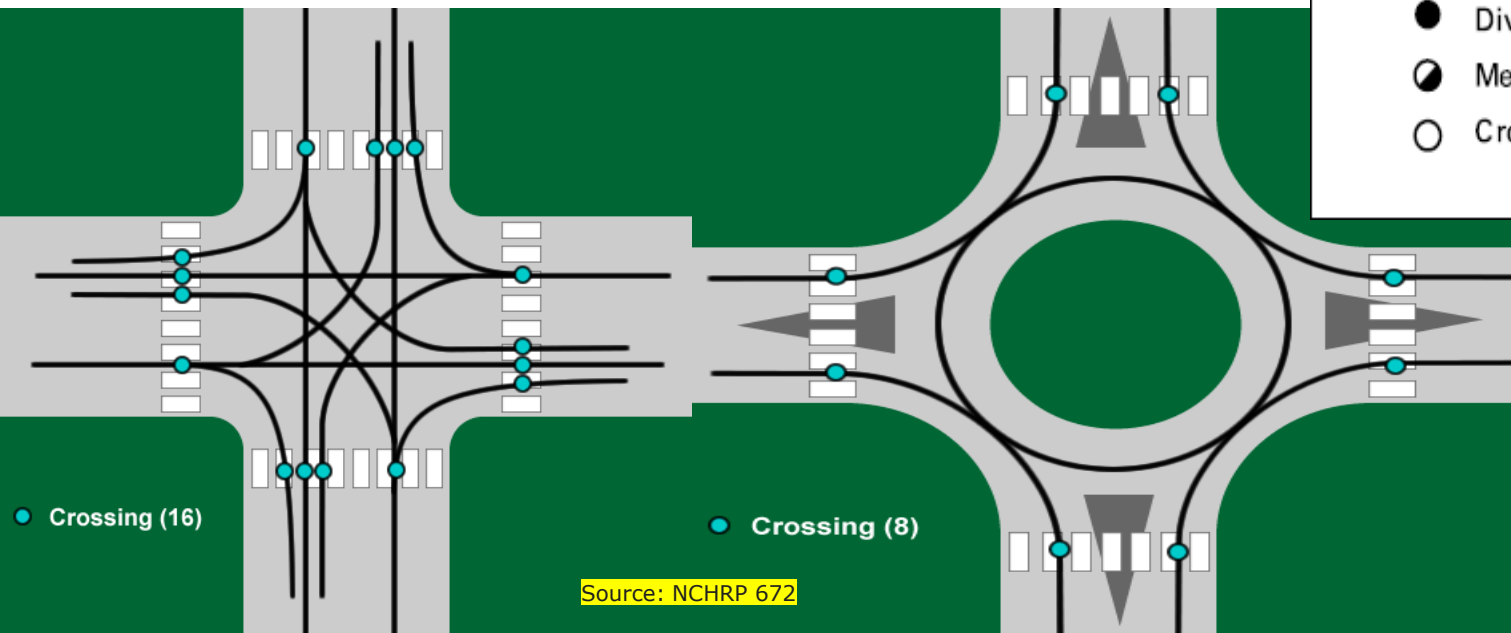
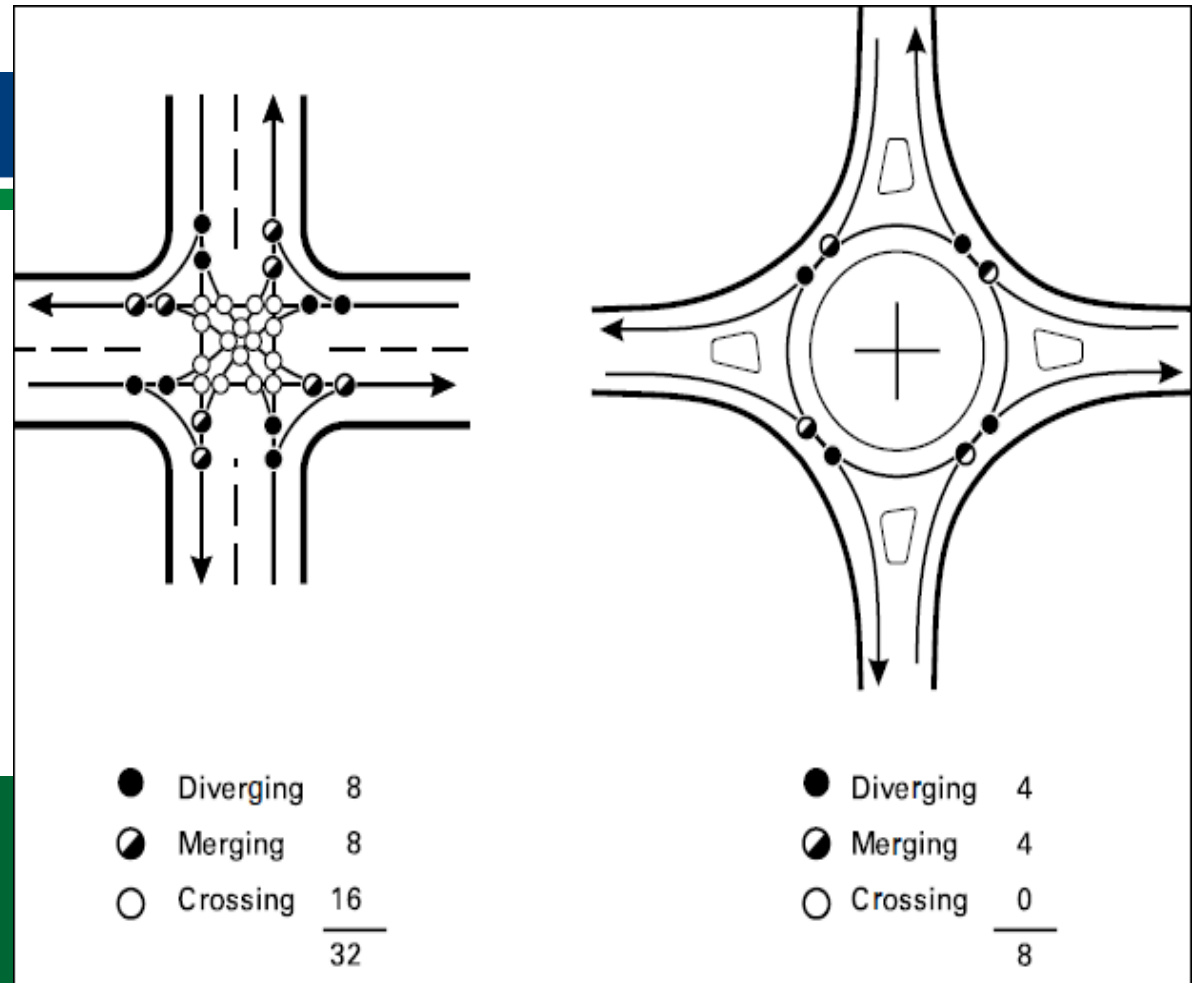


History

- Modern roundabouts have been being built in the U.S. since the early 1990s due to their significant safety and operational benefits.
- FHWA has supported roundabouts since the 1990s.
- There are now over 10,000 in the U.S.
- We built our first in 2005.
(We now have 86 open on State Routes.)

Safety Benefits

- Reduced Speed and Conflict Points
 - ~ 25 MPH
 - 8 vs. 32 (Vehicles)
 - 8 vs. 16 (Pedestrians)



Source: NCHRP 672

➤ Safety Benefits

- **Fatalities** **1**
- **Serious Injury Crashes** **- 35%**
- **All Injury Crashes** **- 51%**
- **PDO Crashes** **+52%**
- **Crashes** **- 3%**



- The PA data is based on the **42** roundabouts on State Routes at previous stop or signal controlled intersections with at least three years of before and after **2003** to **2022** data.
- Does not account for increase in traffic volume over time.
- Roundabouts are commonly installed for Operational Benefits.

➤ Additional Benefits

➤ Operations

- Typically carry about 30% more vehicles than signalized intersection during peak times.
- Almost no delay during off-peak conditions due to yield condition.
- Work well when the power goes out.

➤ Reduced Emissions

➤ Traffic Calming

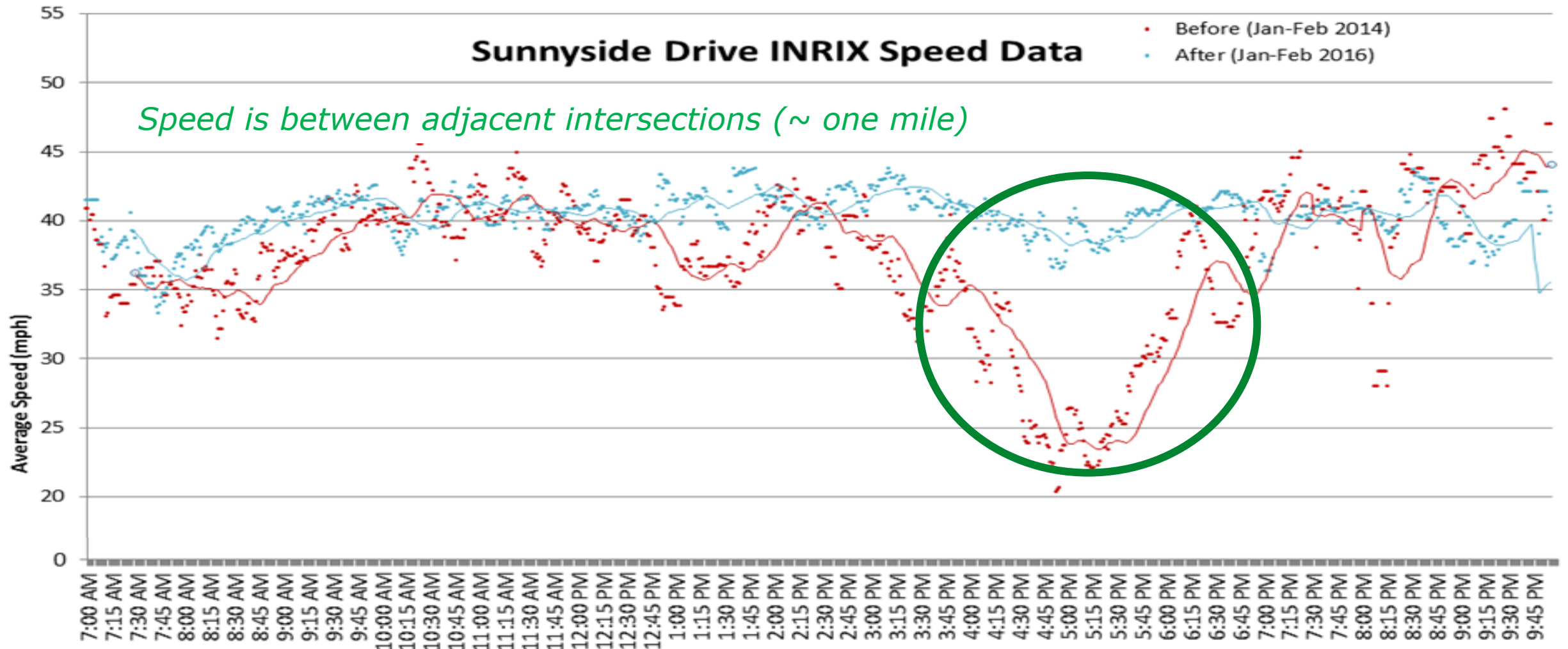
➤ Beautification



San Diego, CA

Operational Performance

➤ SR 34 & Sunnyside Drive, Sterrets Gap – Cumberland & Perry Co.



Implementation

Built/Open to Traffic

- 2005-2014 = 24
- 2015 = 9
- 2016 = 7
- 2017 = 7
- 2018 = 13
- 2019 = 10
- 2020 = 10
- 2021 = 11
- 2022 = 15
- 2023 = 7
- **Total** = **113** (86 on SRs)
- 2024 ~ 10

Construction = 23 (Not Open)

Design = 43



I-81 Avoca Int., Luzerne Co.

Implementation

District = Built on SRs

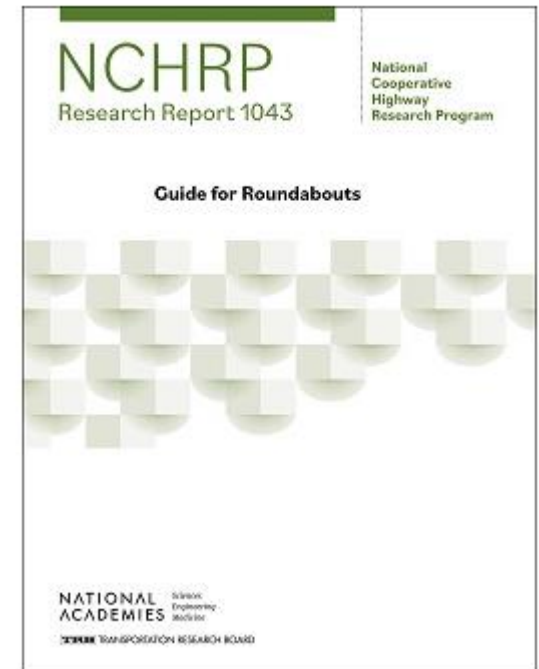
- 1-0 = 11
- 2-0 = 2
- 3-0 = 0
- 4-0 = 12
- 5-0 = 9
- 6-0 = 12
- 8-0 = **19**
- 9-0 = 1
- 10-0 = 3
- 11-0 = 4
- 12-0 = 13



SR 222 & SR 662, Berks Co.

➤ NCHRP – 1043, Guide for Roundabouts (2023)

- Supersedes NCHRP-672, Roundabouts An Informational Guide, Second Edition (2010)
- SOL 432-23-05 (12/1/2023)
 - Effective for projects with Scoping approval after 11/1/23.
- Will be incorporated into new Pub. 13 (DM-2), Contextual Roadway
- Pub. 10C, DM-1C references will be updated.
- Pub. 282, HOP Operations Manual will be updated.



➤ Intersection Control Evaluation (ICE) Policy

- Design Manual 1X, Appendix AI, Issued Sept. 2018
 - [PennDOT - Traffic Signal Portal \(state.pa.us\)](https://www.penn.gov/transportation/traffic-signal-portal)
- Two-Way Stop Control
- All-Way Stop Control
- Signalized Control
- Jughandle
- Roundabout
- Median U-Turn (MUT)
- Unsignalized Restricted Crossing U-Turn (RCUT or J-Turn)
- Signalized Restricted Crossing U-Turn (RCUT or Superstreet)
- Displaced Left Turn (DLT)
- Continuous Green Tee
- Quadrant Roadway



➤ Intersection Control Evaluation (ICE) Policy

➤ Applicable:

- Creation of a new intersection
- Creation of a medium-volume or high-volume driveway
- Adding a leg to an existing intersection that is not a minimal use driveway
- Adding a through lane or turning lane at an existing intersection, or changing the lane configuration at an existing intersection
- Changing control at an existing intersection
- Full-depth reconstruction of an existing intersection
- Lane configuration or control changes at ramp terminal intersections
- Points of access requests in accordance with the Points of Access policy

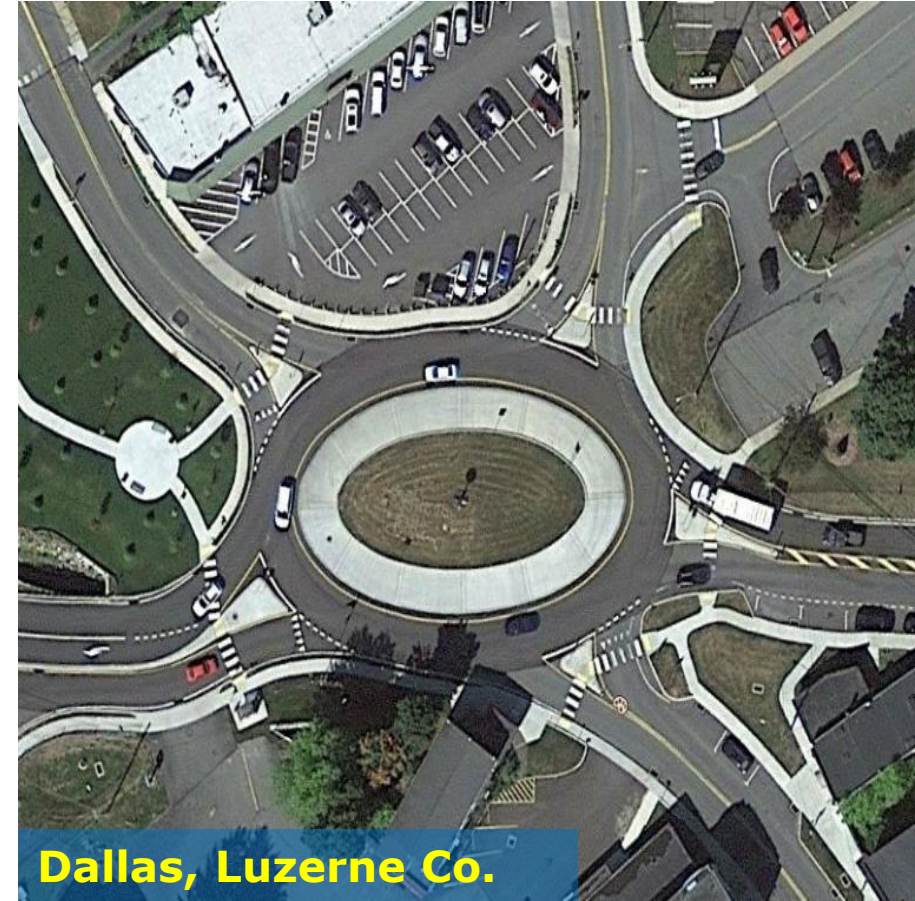
➤ Useful Links

➤ PennDOT

- <https://www.penndot.gov/ProjectAndPrograms/RoadDesignEnvironment/RoadDesign/Pages/Roundabouts.aspx>
- [PennDOT|Traffic Signal Portal \(state.pa.us\)](https://www.state.pa.us/ice/traffic-signal-portal) – ICE Tool

➤ FHWA

- <https://safety.fhwa.dot.gov/provencountermeasures/>
- <https://safety.fhwa.dot.gov/intersection/>



Dallas, Luzerne Co.

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PLUM STREET ROUNDABOUT

N. Plum St., Park Ave., & E. New St. Intersection

A Small Roundabout with a Big Impact

PennDOT LTAP Drop-In Session
March 7, 2024





PLUM STREET ROUNDABOUT

N. Plum St., Park Ave., & E. New St. Intersection

AGENDA

- Project Overview: Purpose and Goals
- Quick-Build Trial
- Before and After Study
- Securing Funding for the Capital Improvement Project
- Public Engagement Process
- Design
- Summary



PLUM STREET ROUNDABOUT

N. Plum St., Park Ave., & E. New St. Intersection

PROJECT OVERVIEW



Past Conditions

- Community safety concerns: High-crash intersection, vehicular speeding and long crosswalks
- Recommended as a mini park in the Urban Park, Recreation, and Open Space Plan

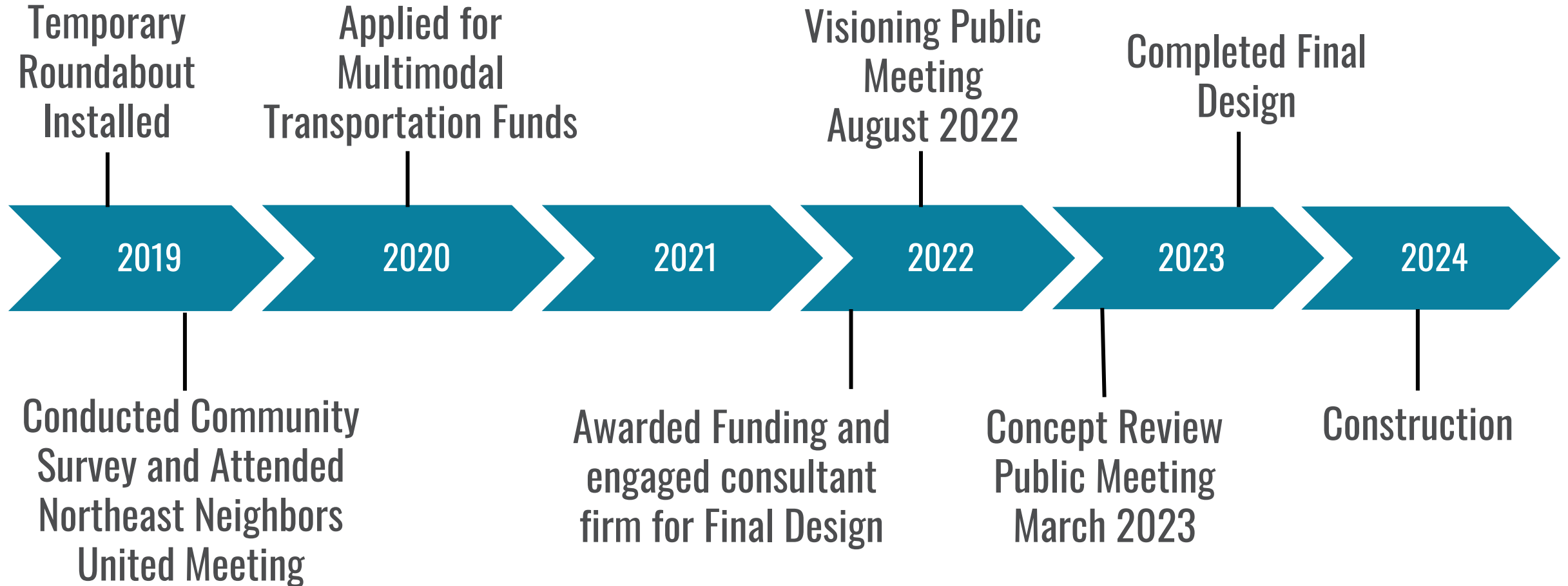
Project Location



PLUM STREET ROUNDABOUT

N. Plum St., Park Ave., & E. New St. Intersection

PROJECT TIMELINE

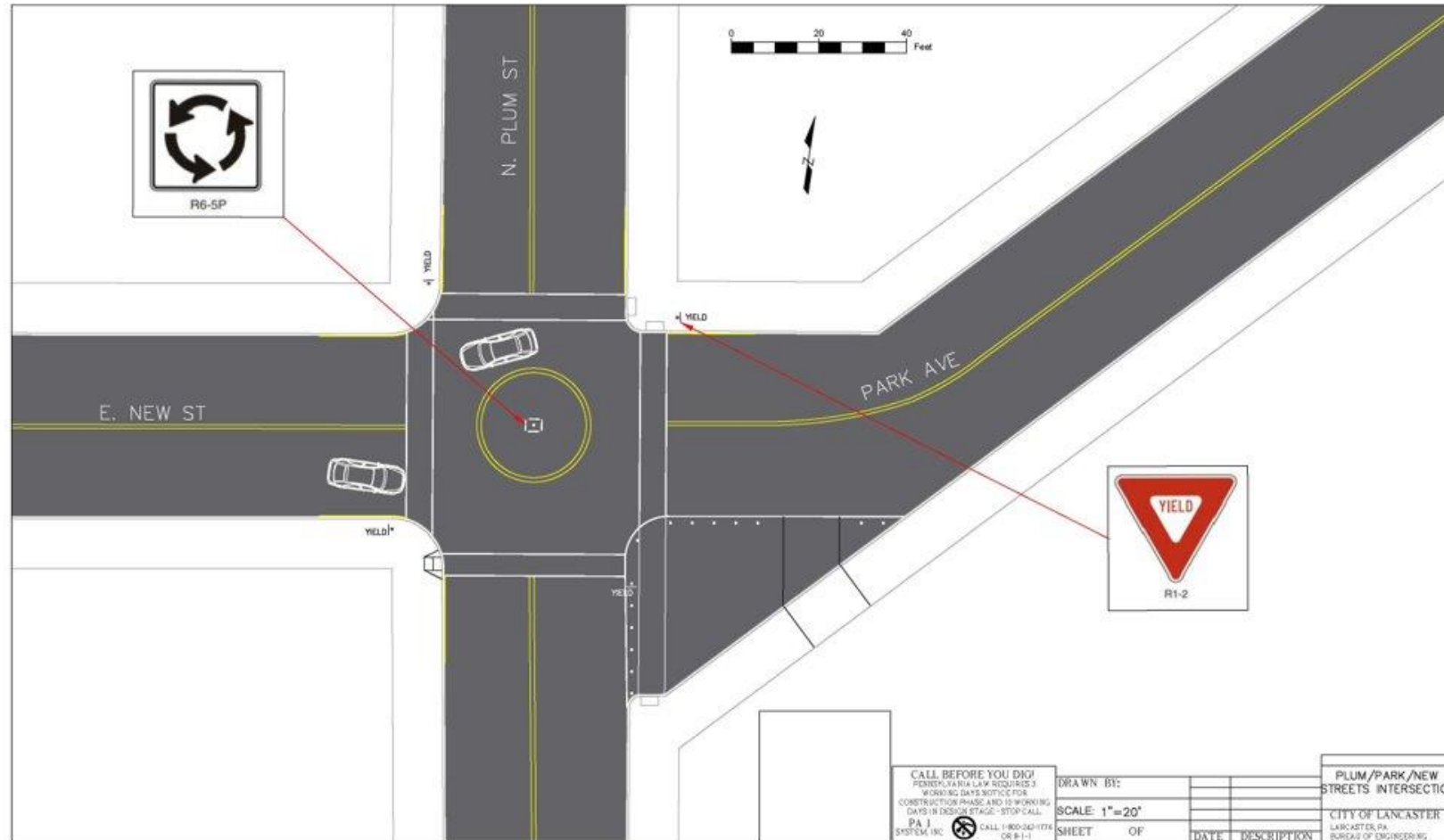




PLUM STREET ROUNDABOUT

N. Plum St., Park Ave., & E. New St. Intersection

Quick-Build Trial





PLUM STREET ROUNDABOUT

N. Plum St., Park Ave., & E. New St. Intersection

Quick-Build Trial



Elements of the temporary mini-roundabout installed in 2019



PLUM STREET ROUNDABOUT

N. Plum St., Park Ave., & E. New St. Intersection

Speed Summary Data

Prior to Temporary Installation - 85 th Percentile (10/29/18)	After Temporary Installation – 85 th Percentile (8/28/19)	Targeted Roundabout Entry Speed (NCHRP Report 672)
29 MPH	24 MPH	20 MPH





PLUM STREET ROUNDABOUT

N. Plum St., Park Ave., & E. New St. Intersection

Crash Summary Data

Crash Type	After Temporary Installation – January 2016 to June 2019	After Temporary Installation – July 2019 to December 2022
Suspected Minor Injuries	2	2
Possible Injury	1	0
Property Damage	5	1
Angle Crashes	8	2
Same Direction Crash	0	1
Total Crashes	8	3

Note: No Reported crashes in 2023



PLUM STREET ROUNDABOUT

N. Plum St., Park Ave., & E. New St. Intersection

Survey and Data Results

TAKEAWAYS TO GUIDE DESIGN:

Majority of respondents would like the roundabout to become **permanent**.

The roundabout has **slowed vehicle speeds** and has **improved safety**.

There is a need to **improve pedestrian access** to increase compliance.

There is a need to **improve bicycle accommodations** to increase compliance.

Large vehicles should be accommodated better.

The space in the southeast intersection should be **repurposed** for uses other than motor vehicles.



N. Plum St., Park Ave., & E. New St. Intersection

VISION SESSION MEETING OBJECTIVES:

- Spread awareness of the project, and it's anticipated schedule
- Collect additional feedback on temporary roundabout operations
- Provide a toolbox of potential improvements, and gain a consensus on what is desired
- Begin to develop a vision for the new public space





PLUM STREET ROUNDABOUT

N. Plum St., Park Ave., & E. New St. Intersection

Public Engagement Process

CONCEPT REVIEW MEETING OBJECTIVES:

- Review and received feedback on Preliminary Roadway Concept.
- Receive feedback on preliminary Public Space Concepts





PLUM STREET ROUNDABOUT

N. Plum St., Park Ave., & E. New St. Intersection

Preliminary Concept



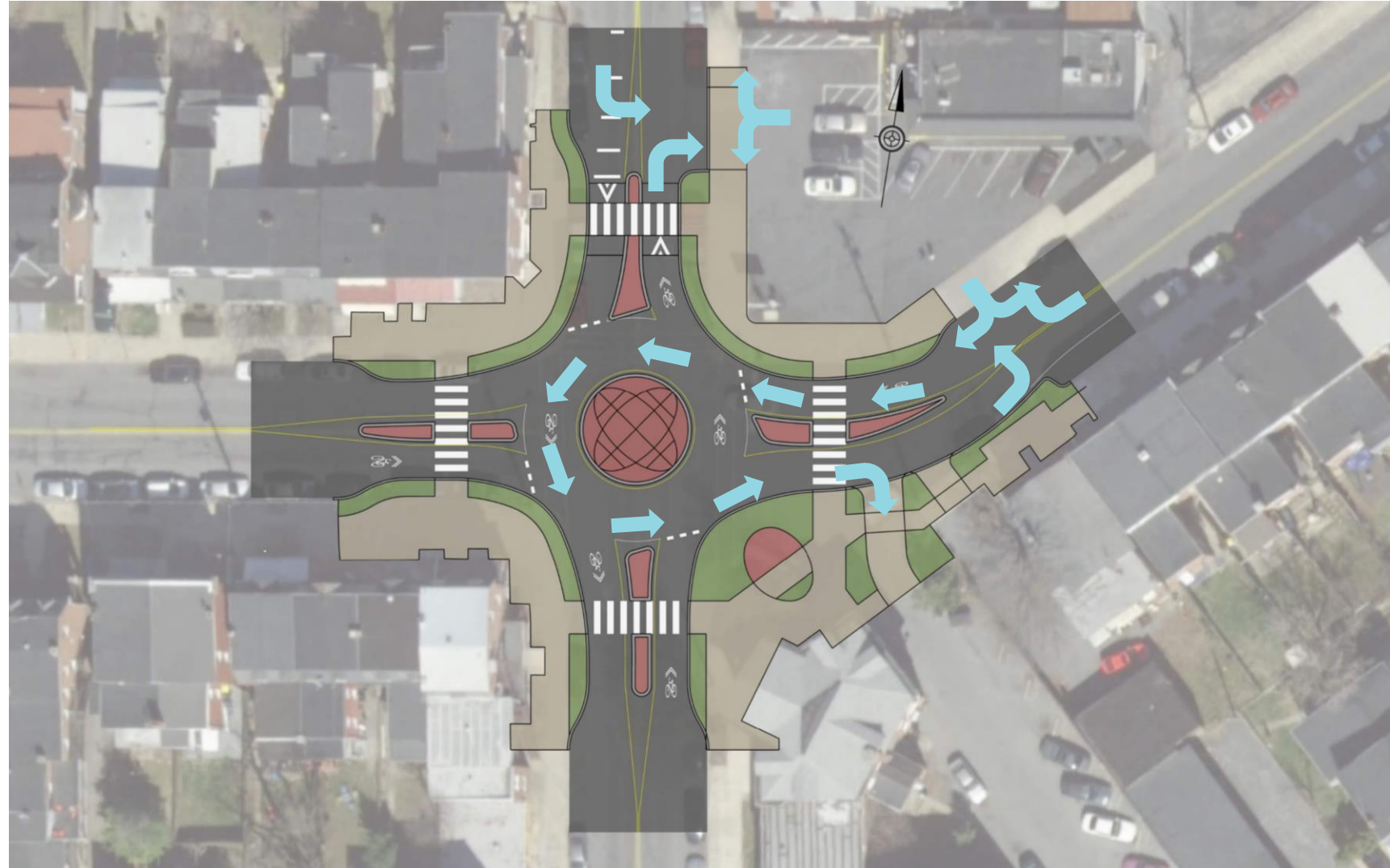


PLUM STREET ROUNDABOUT

N. Plum St., Park Ave., & E. New St. Intersection

Site Access

- Entering Turkey Hill
- Exiting Turkey Hill
- Entering Fulton Hotel





PLUM STREET ROUNDABOUT



N. Plum St., Park Ave., & E. New St. Intersection

Preliminary Concept Development

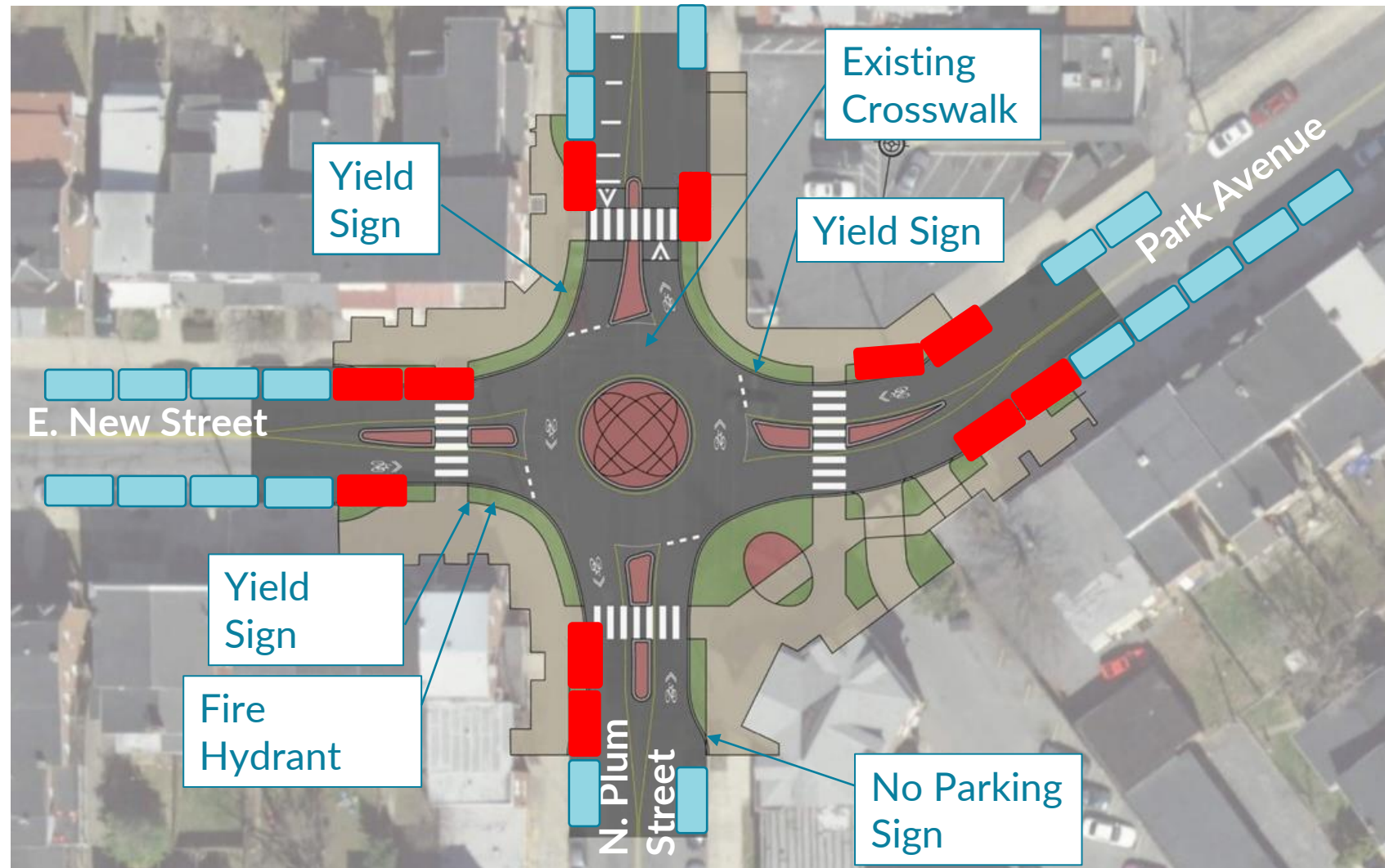
No Parking Requirements:

- 15' from a fire hydrant
- 20' of a Crosswalk
- 30' upon the approach to a Yield/Stop Sign

Legend:

-  Existing Parking Space
-  Removed Existing Parking Space

- 11 Existing Parking Spaces Removed



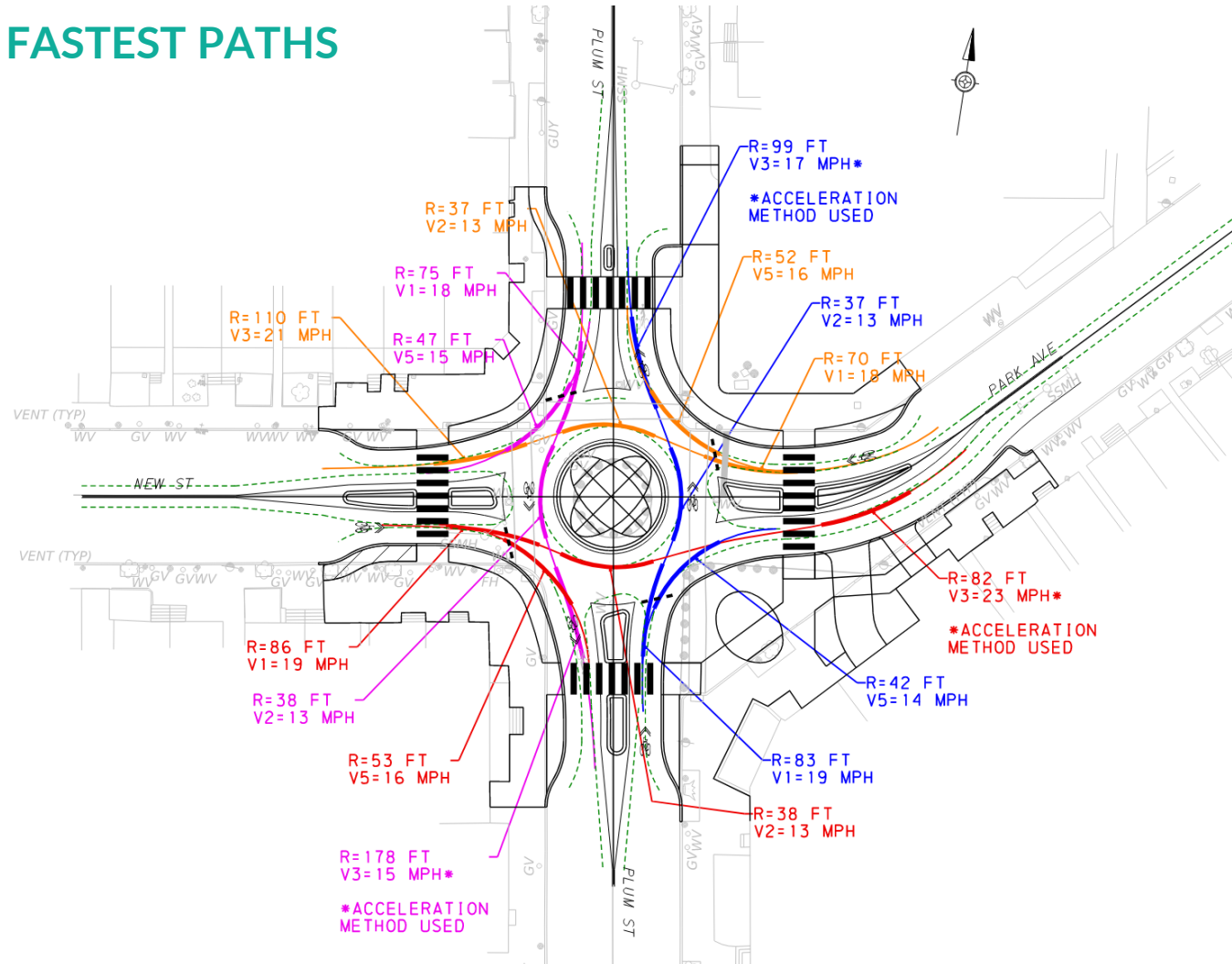


PLUM STREET ROUNDABOUT

N. Plum St., Park Ave., & E. New St. Intersection

Final Design

DESIGN CRITERIA: FASTEST PATHS



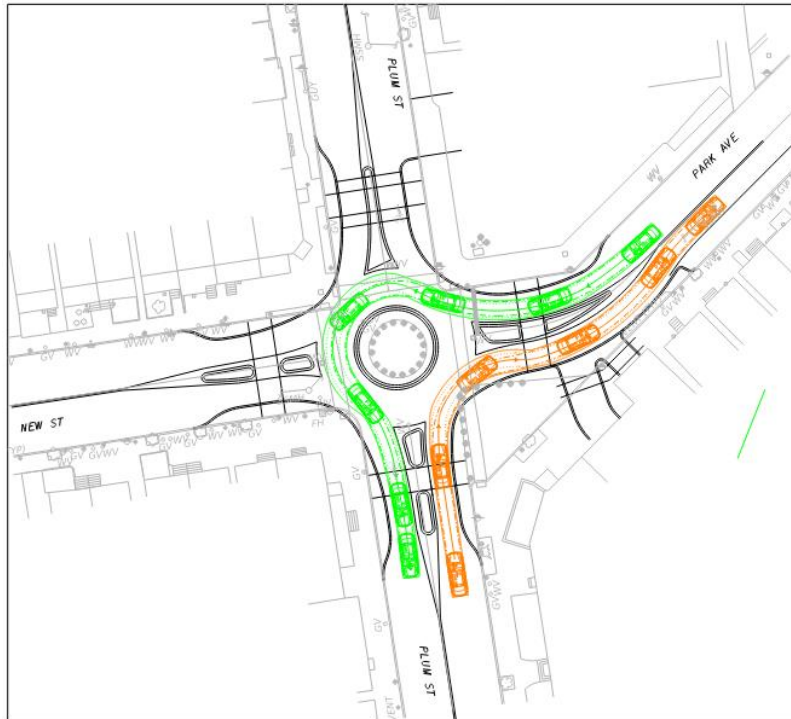


PLUM STREET ROUNDABOUT

N. Plum St., Park Ave., & E. New St. Intersection

Final Design

DESIGN CRITERIA: TURNING TEMPLATES



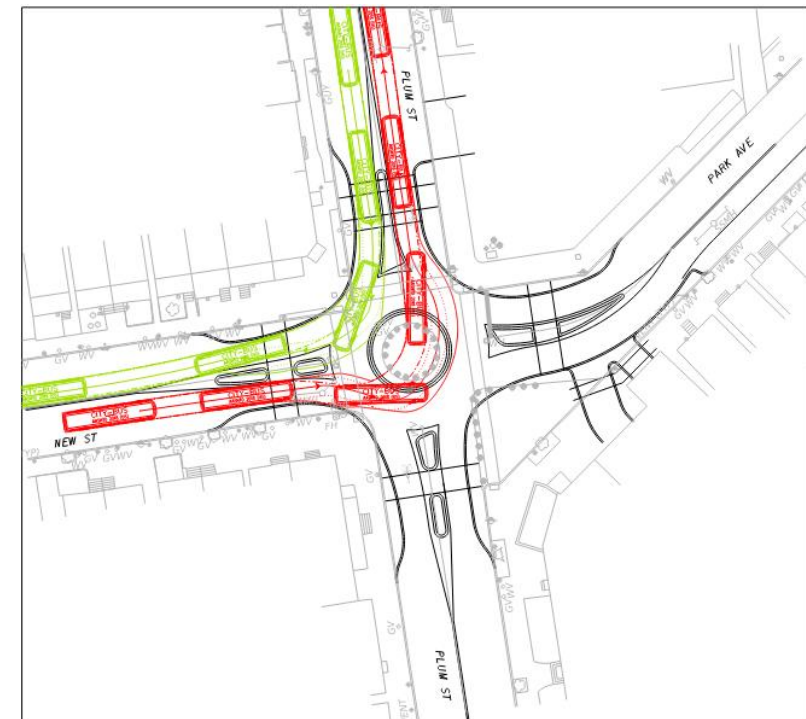
Design Vehicles:

All movements in lane



Control Vehicles:

WB left turn from Park Ave may use center island



Buses:

EB left turn from New St may use center island

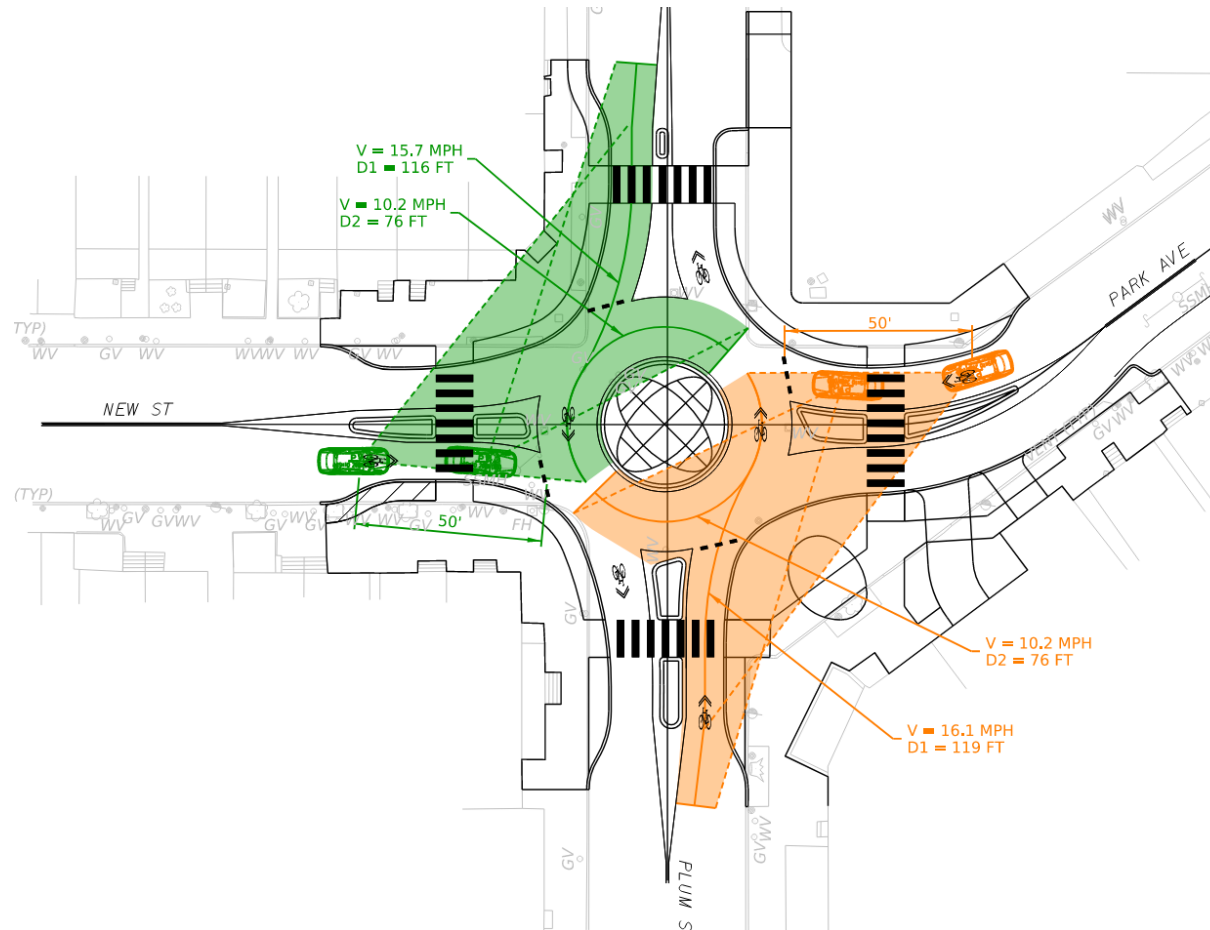


PLUM STREET ROUNDABOUT

N. Plum St., Park Ave., & E. New St. Intersection

Final Design

SIGHT DISTANCE CHECKS



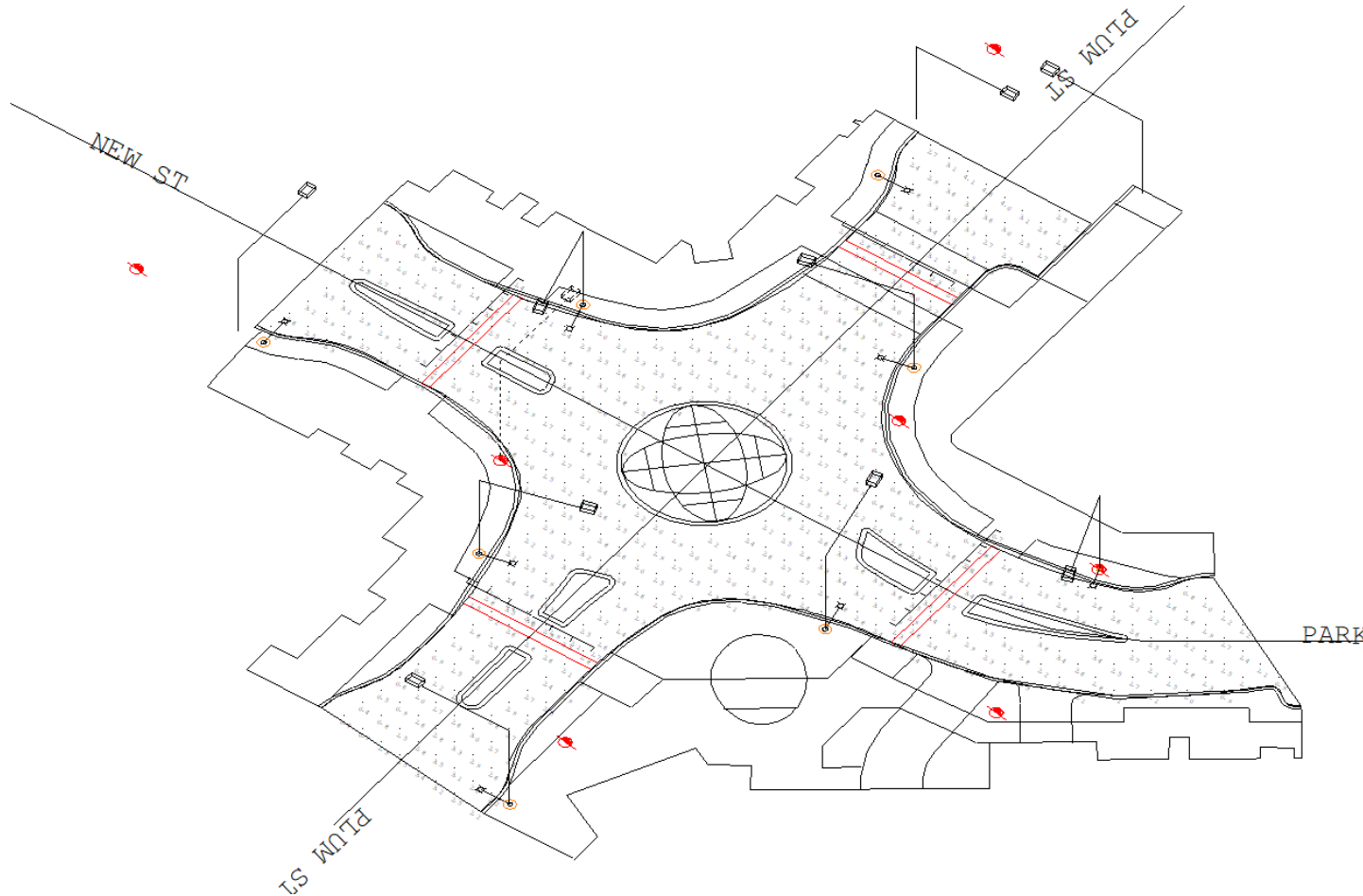


PLUM STREET ROUNDABOUT

N. Plum St., Park Ave., & E. New St. Intersection

Final Design

LIGHTING DESIGN



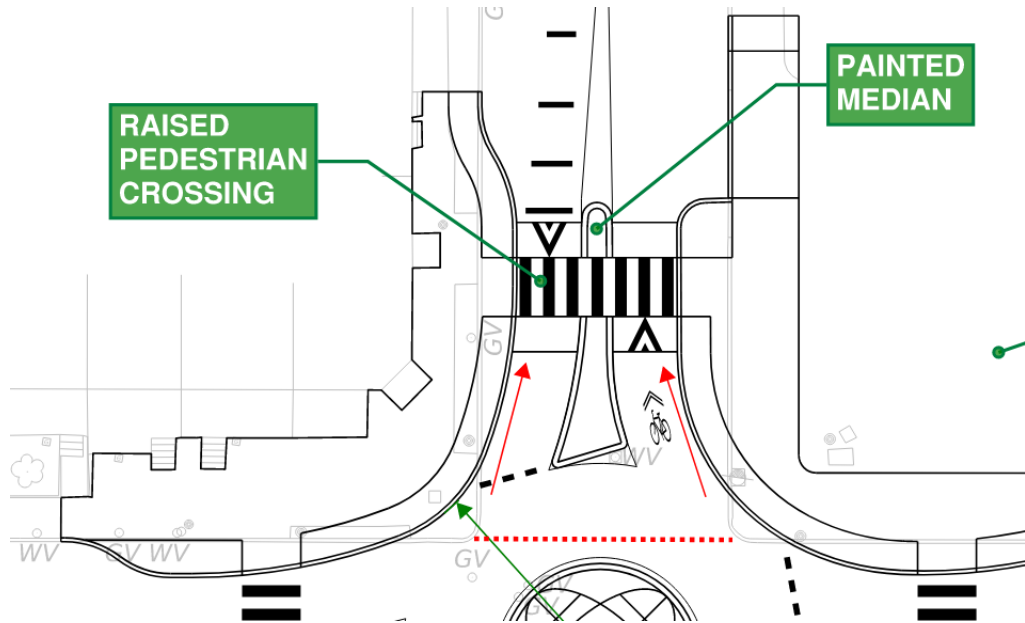


PLUM STREET ROUNDABOUT

N. Plum St., Park Ave., & E. New St. Intersection

Final Design

DRAINAGE DESIGN



Challenges with Raised Crosswalk

Solutions:

- New Inlets
- Channel Drains
- Speed Table Crosswalk
- Remove Raised Crosswalk



Channel Drain Example, Harrisburg, PA



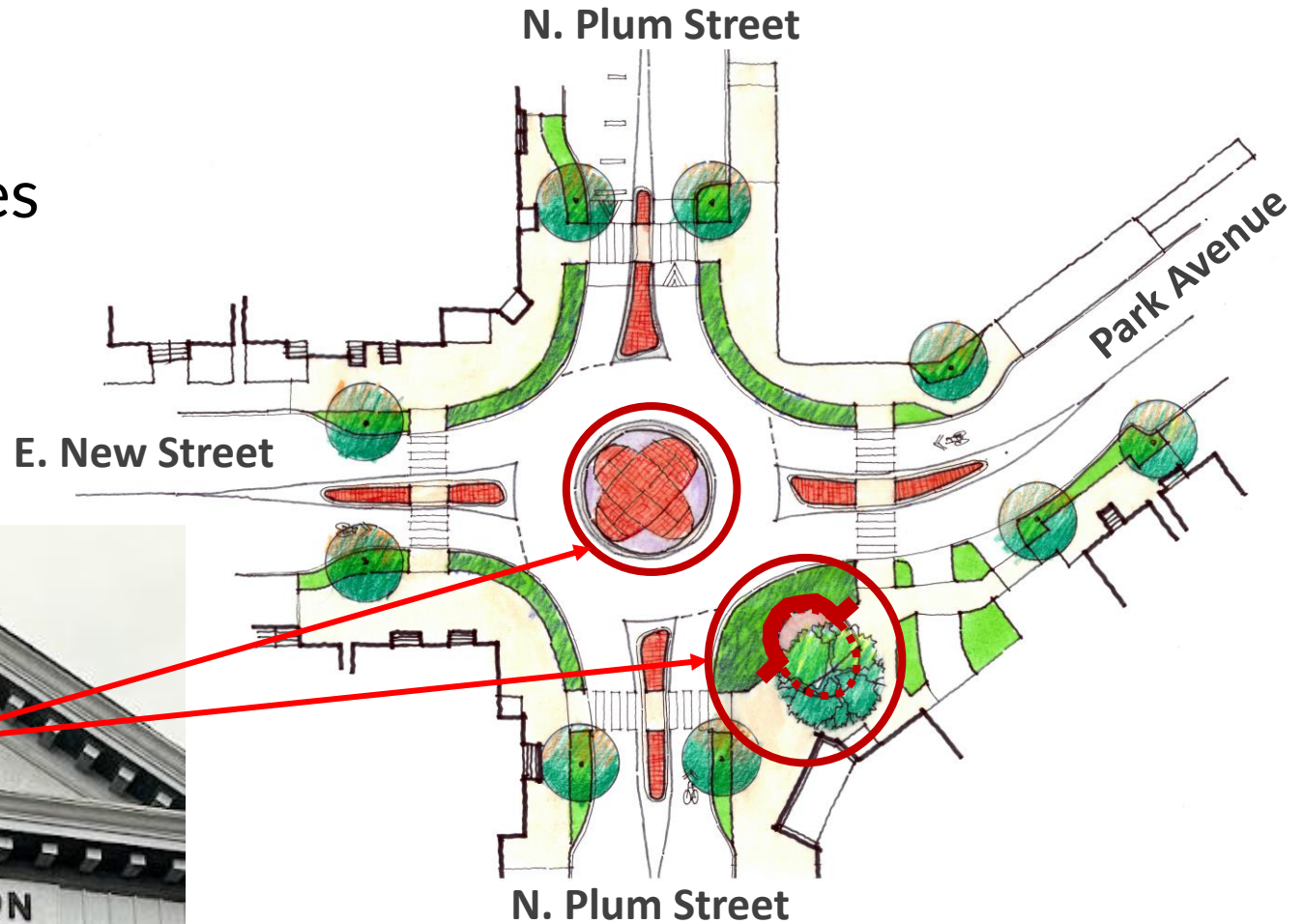
PLUM STREET ROUNDABOUT

N. Plum St., Park Ave., & E. New St. Intersection

Final Design

LANDSCAPING DESIGN

- Community Feedback
- Roundabout sight triangles
- Creating a Public Space
- Incorporating Public Art





PLUM STREET ROUNDABOUT

N. Plum St., Park Ave., & E. New St. Intersection

Key Takeaways

- Pilot beneficial for public and engineering
- Community engagement – collect feedback that is measurable
- Benefits of a mini-roundabout vs traditional intersection
- Early engagement of stakeholders pertaining to design/control vehicles.



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