



Prepared for:  
Harrisonburg Rockingham Metropolitan Planning Organization  
Technical Advisory Committee Meeting

# City of Harrisonburg Mt. Clinton Pike Reconfiguration Study

November 3, 2022



# Welcome



**Jon Crisafi, PE, PTOE**

Senior Engineer

Kittelson & Associates, Inc.



**Harrisonburg  
Rockingham**  
Metropolitan Planning  
Organization



# Overview

- Background
- Operations/Safety
- Road Reconfiguration Design





# Background





# Study Area

## MT. CLINTON PIKE

Distance	1.35 miles
Functional Classification	Minor Arterial
Typical Section	4-lane, Undivided (48-ft)
Posted Speed Limit	35 MPH



INTRO

BACKGROUND

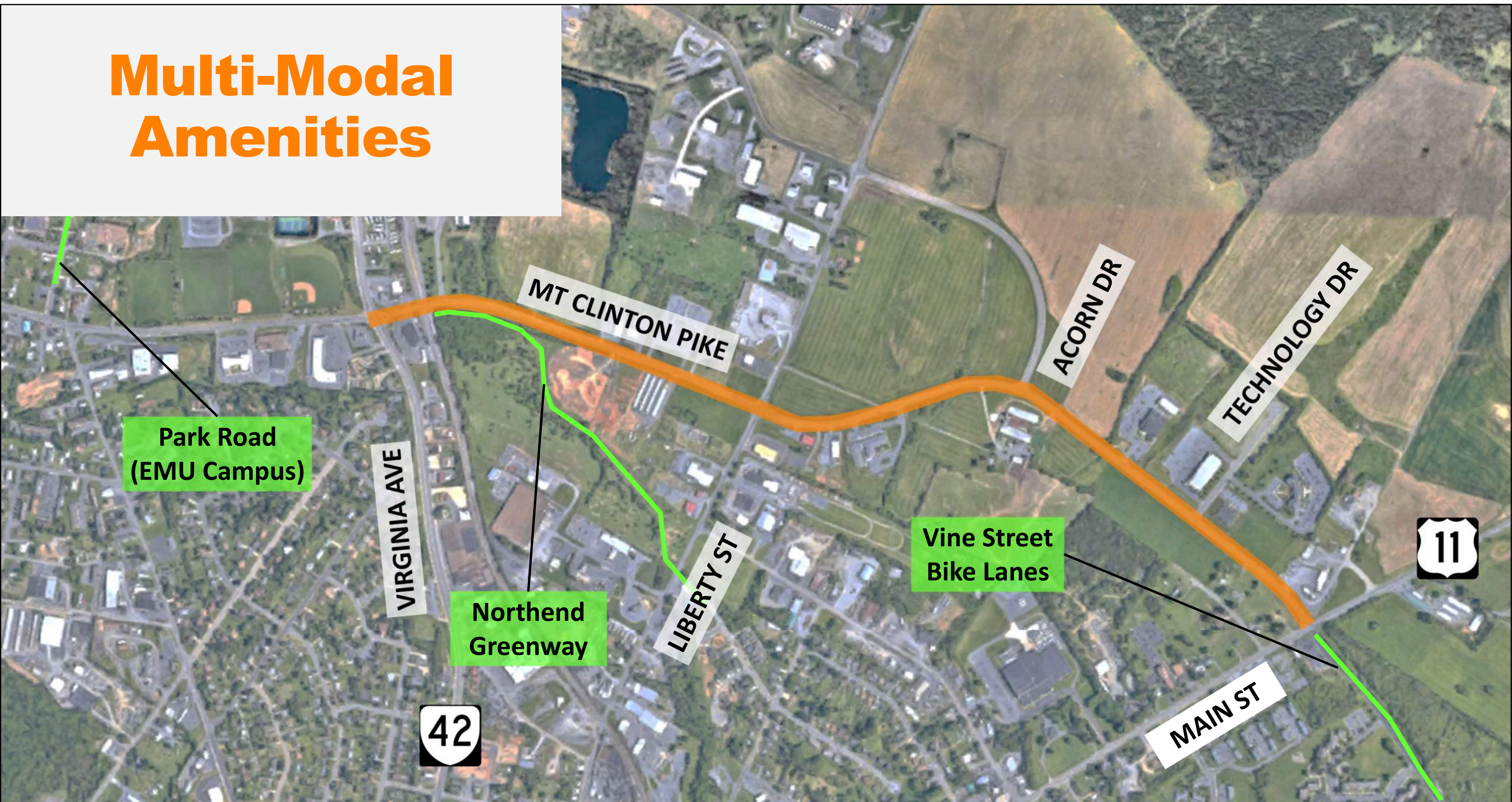
OPERATIONS/SAFETY

ROAD RECONFIGURATION  
DESIGN

NEXT STEPS



# Multi-Modal Amenities



INTRO

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# Study Purpose

- Evaluate existing traffic operations and safety conditions
  - **Identify opportunities** for improving safety/connectivity
- Assess future travel projections and development patterns
- Develop road reconfiguration design concept

# Road Reconfigurations

- Modifying pavement markings during repaving efforts or new construction
- Safety driven designs

• *Source: VDOT Roadway Reconfiguration Guidance*

## VDOT'S ROADWAY RECONFIGURATIONS ACROSS THE STATE

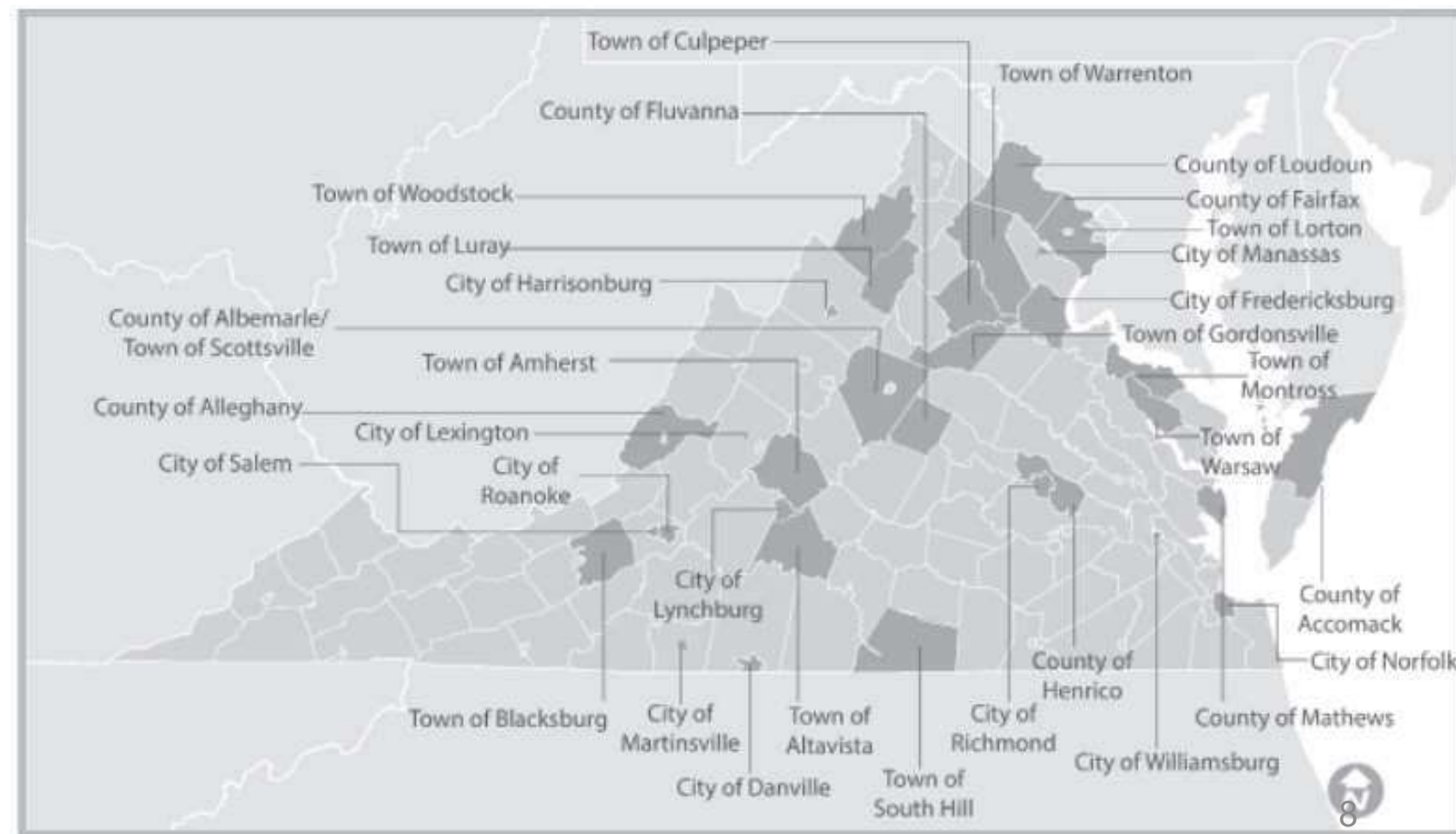


REDUCE VEHICULAR SPEEDS

ENCOURAGE ECONOMIC GROWTH

IMPROVE ROADWAY SAFETY

CREATE SPACE FOR BICYCLISTS AND WALKERS





# Road Reconfigurations

- Typically, reutilize pavement space by removing travel lanes to allow for bike lines, turn lanes, and/or parking.
- Lanes/intersections are evaluated for available capacity.

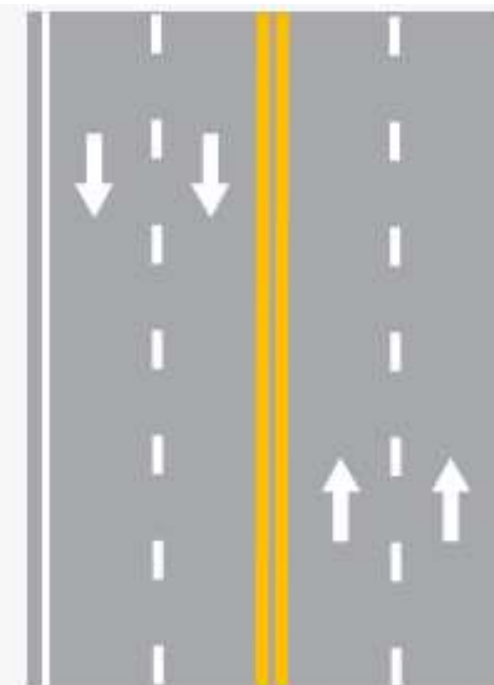
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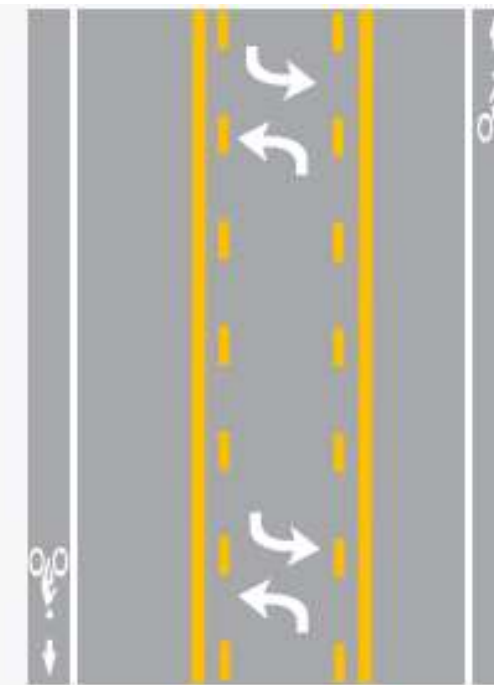
Bluemont Way (Before)



Bluemont Way (After)



Before



After



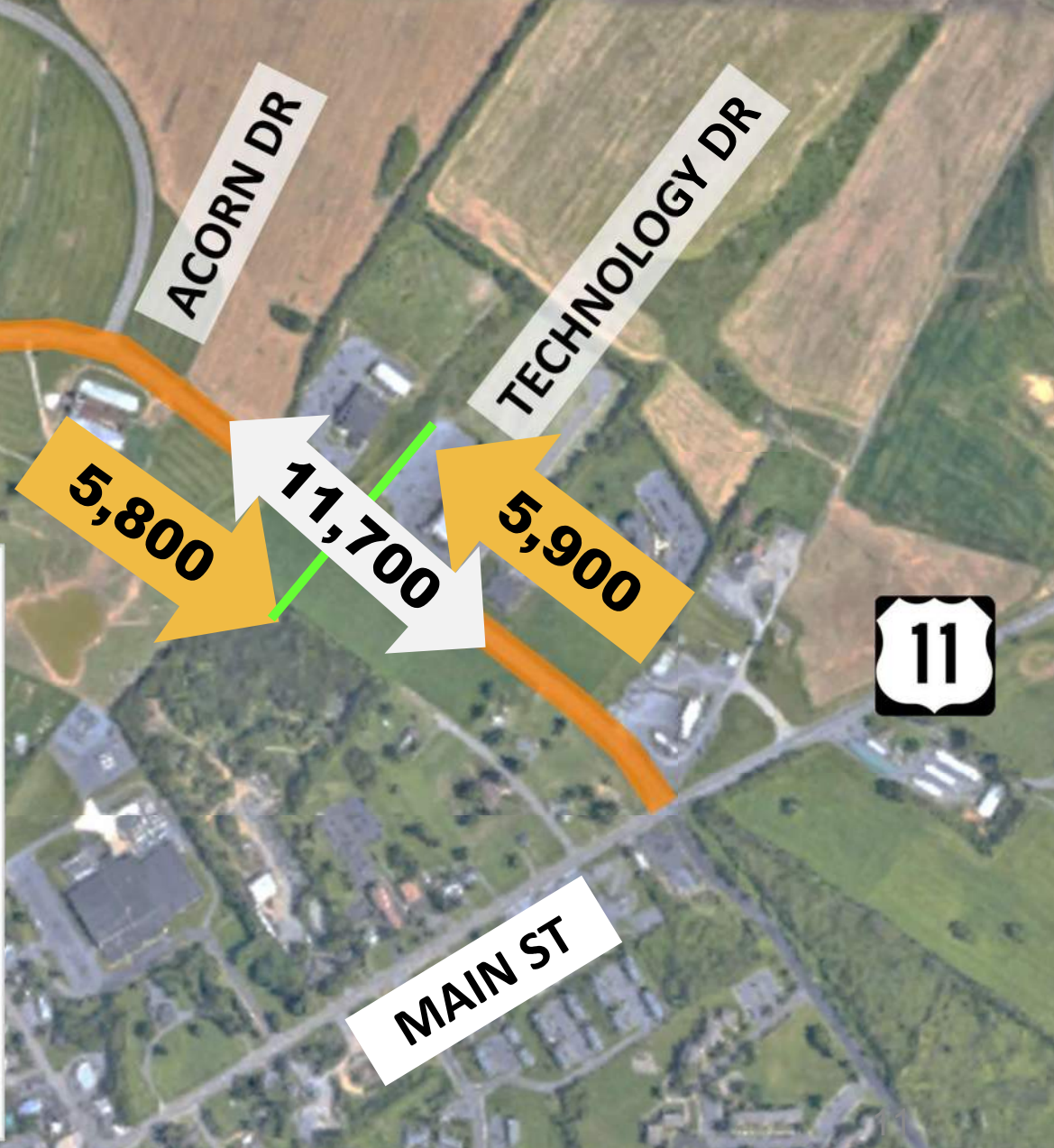
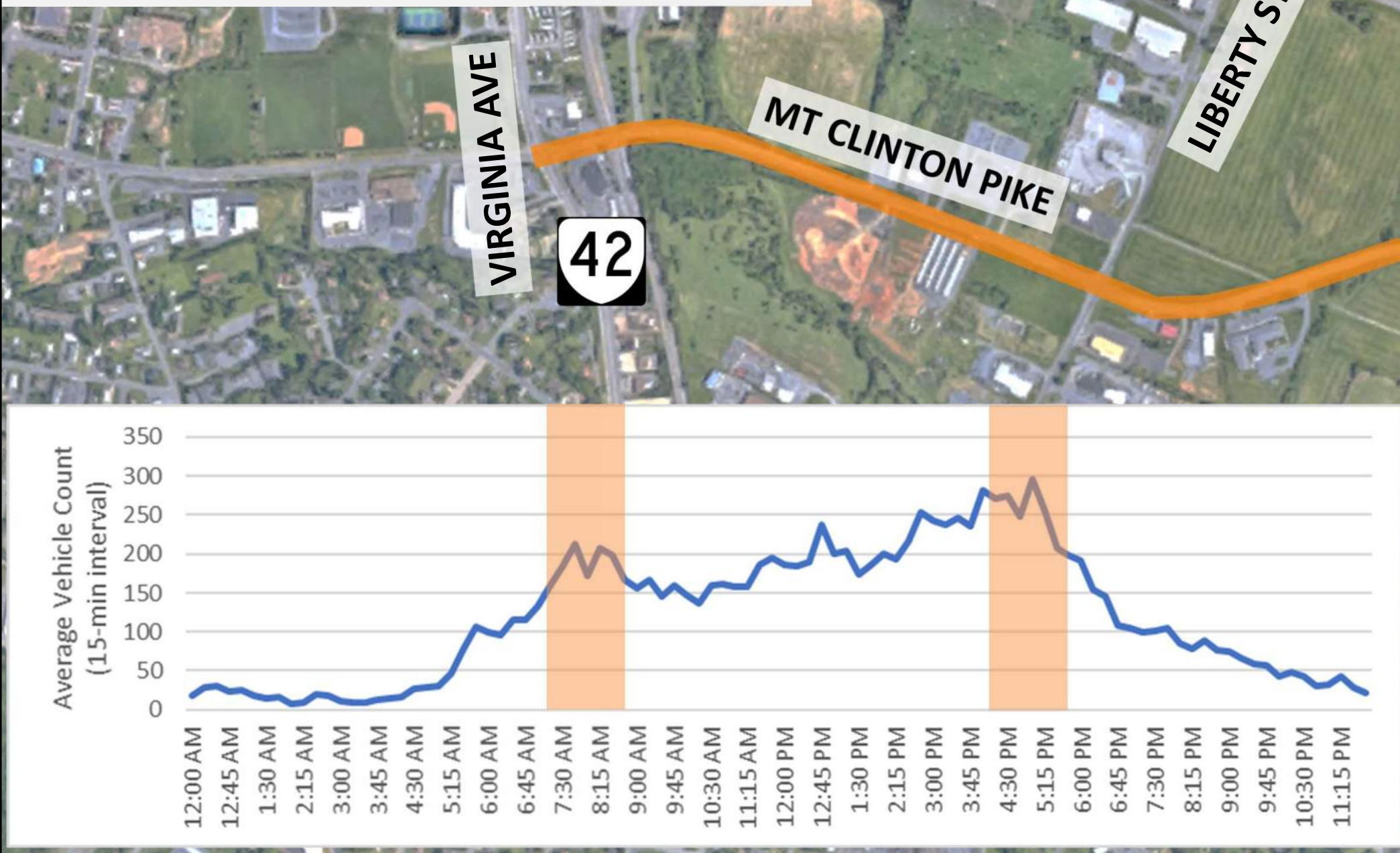
# Operations/ Safety





# Existing 2022 Volumes/Speeds

Direction	Speed Limit	Average	85 <sup>th</sup> Perc.
Eastbound	35 MPH	39	45
Westbound		39	46

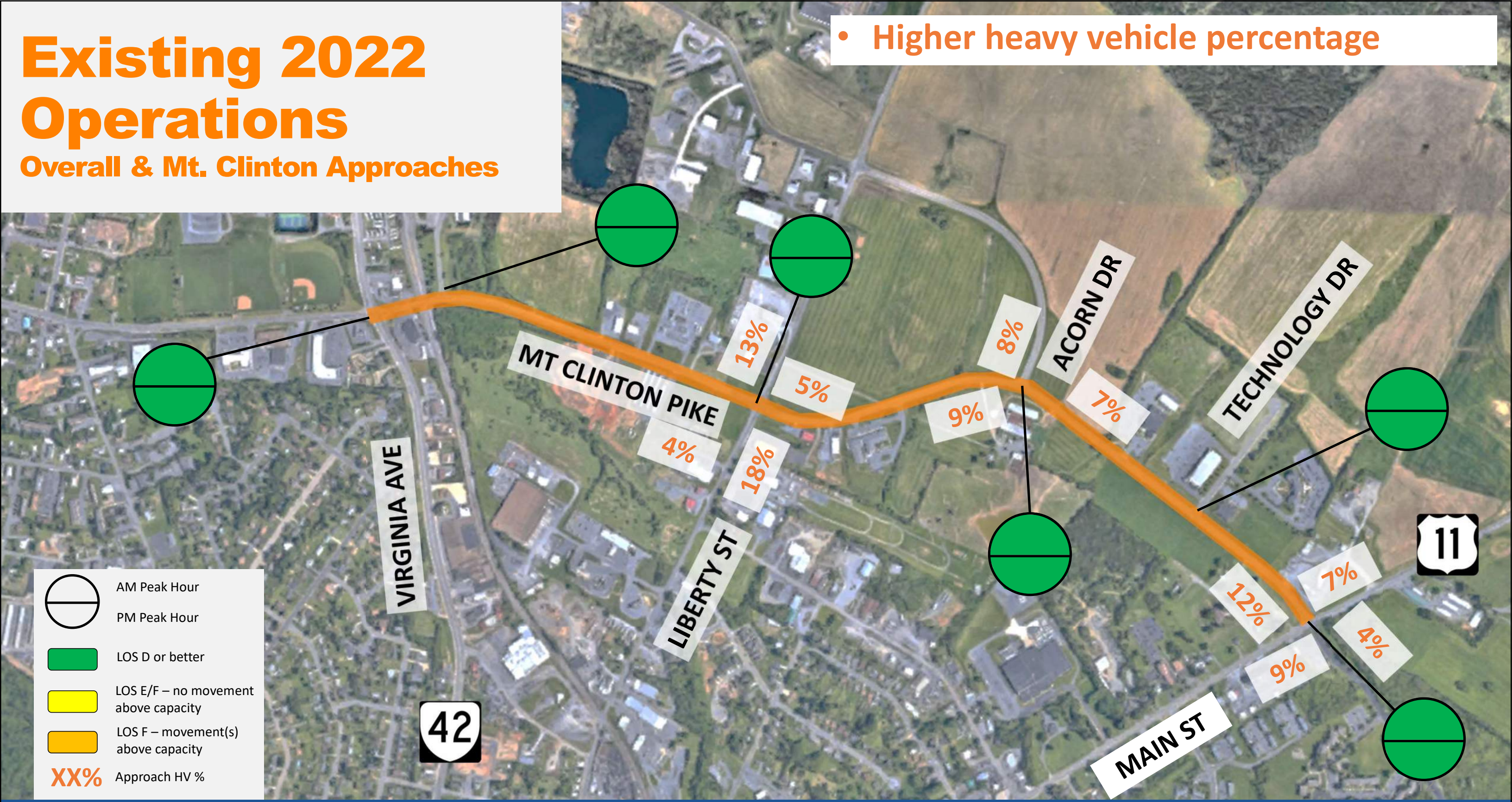




# Existing 2022 Operations

## Overall & Mt. Clinton Approaches

- Higher heavy vehicle percentage

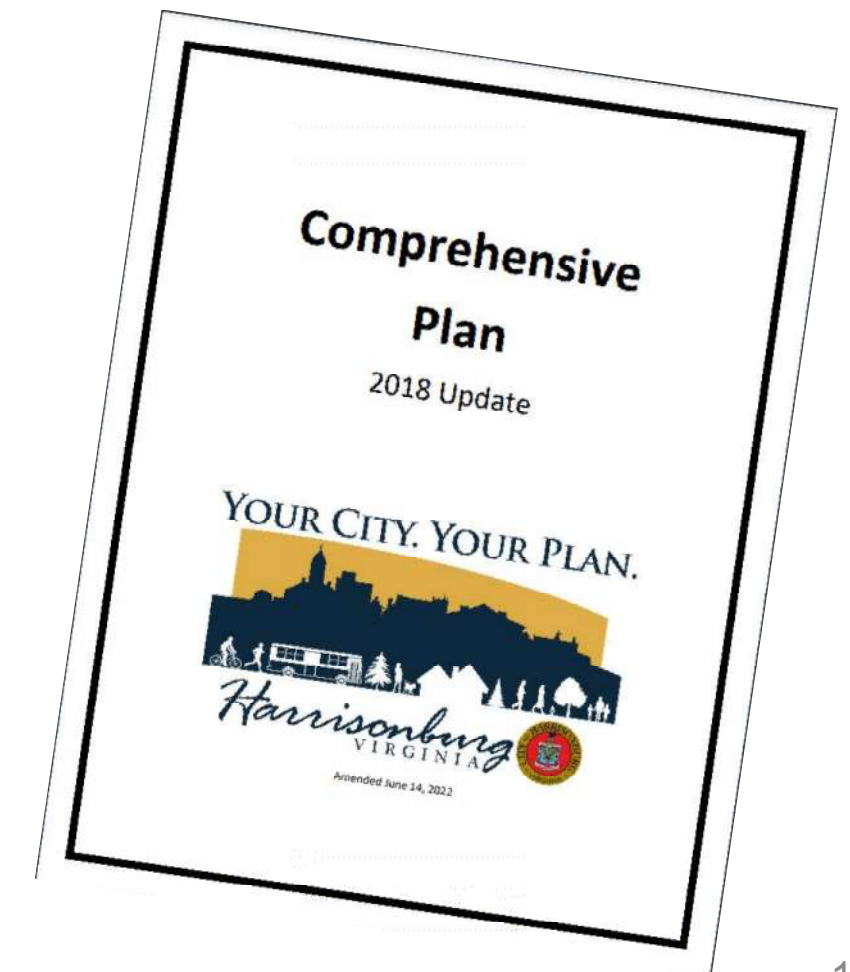


- AM Peak Hour
- PM Peak Hour
- LOS D or better
- LOS E/F – no movement above capacity
- LOS F – movement(s) above capacity
- Approach HV %



# Future 2040 Conditions

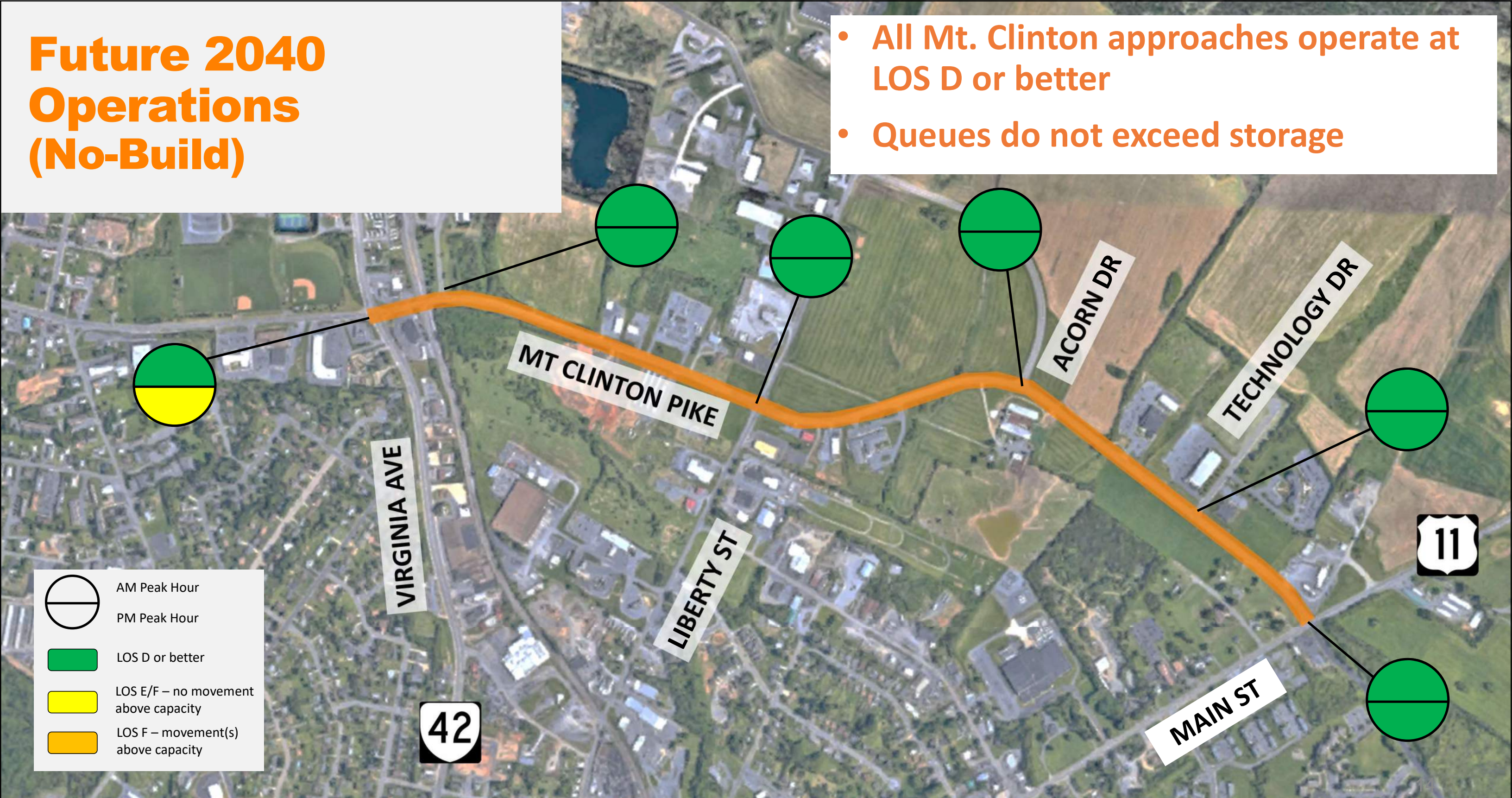
- Derived volumes/growth from *City of Harrisonburg's 2018 Comprehensive Plan* for 2040 volumes
  - Compared to current AADT counts
    - 2018 and 2020
    - Supplemented with VDOT Traffic Data
- Includes assumptions for development
  - Development of the "Island"
  - Agricultural development on Acorn
  - Technology Drive development





# Future 2040 Operations (No-Build)

- All Mt. Clinton approaches operate at LOS D or better
- Queues do not exceed storage



	AM Peak Hour
	PM Peak Hour
	LOS D or better
	LOS E/F – no movement above capacity
	LOS F – movement(s) above capacity



# Future 2040 Volumes

- ADT for a 4-3 Lane Conversion = 16,000
- Most segments below threshold
- *Acorn-US 11 near threshold in 2040*





# Safety

- Jan 2014-Dec 2021
- 78 total crashes
- 0 fatalities



INTRO

BACKGROUND

**OPERATIONS/SAFETY**

ROAD RECONFIGURATION  
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NEXT STEPS



# Safety

- Jan 2014-Dec 2021
- 78 total crashes

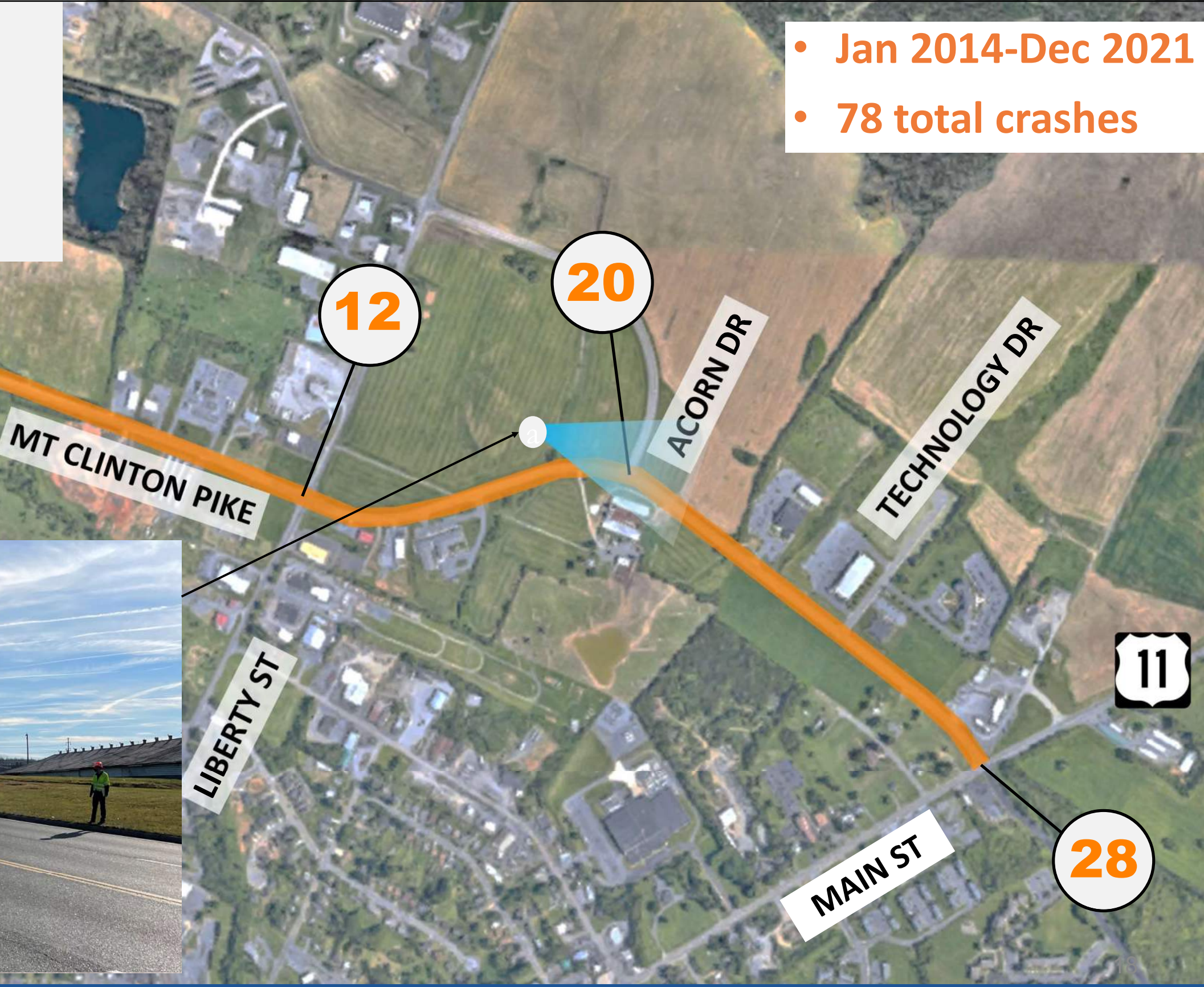
No.	Crash Type	Total	% Total
1	Angle	37	47%
2	Rear-end	16	21%
3	Sideswipe (opposite dir.)	8	8%
4	Fixed Object Off Road	5	6%
-	Animal	5	6%
6	All other crash types	7	12%

Crash Severity	Total	% Total
K - Property Damage Only	0	0%
A - Serious Injury	2	3%
B - Minor/Possible Injury	22	28%
C - No Apparent Injury	0	0%
O - No Injury (property damage only)	54	69%



# Safety Intersection Crashes

- Jan 2014-Dec 2021
- 78 total crashes





# Road Reconfiguration Design



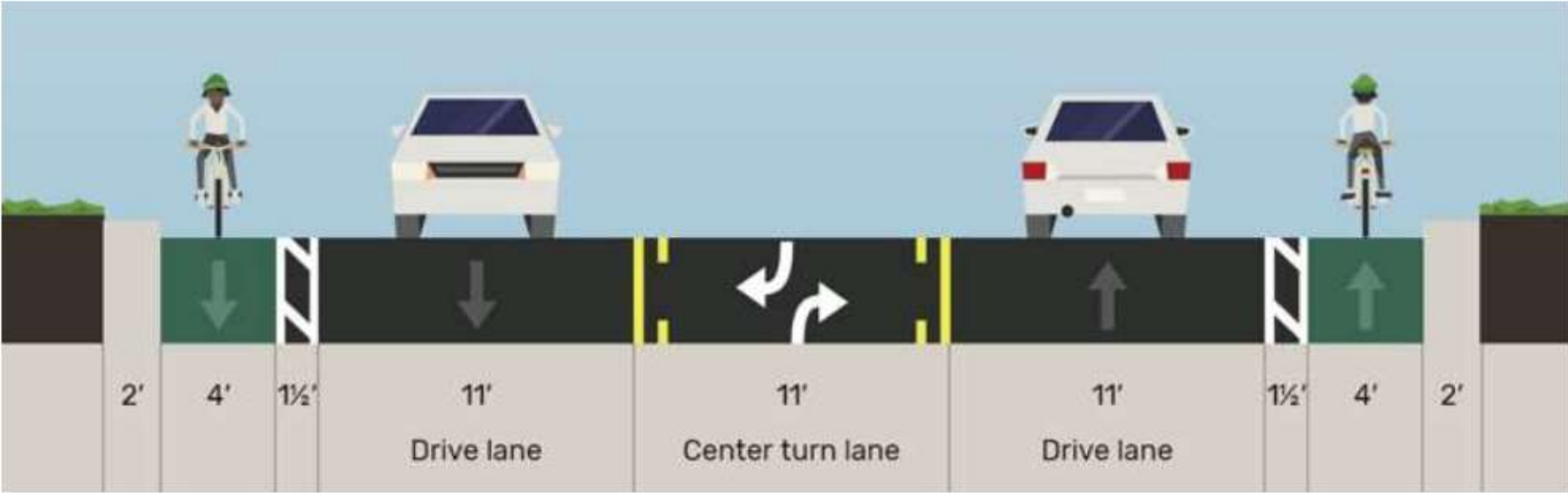


# Road Reconfiguration Design

**Existing Typical**

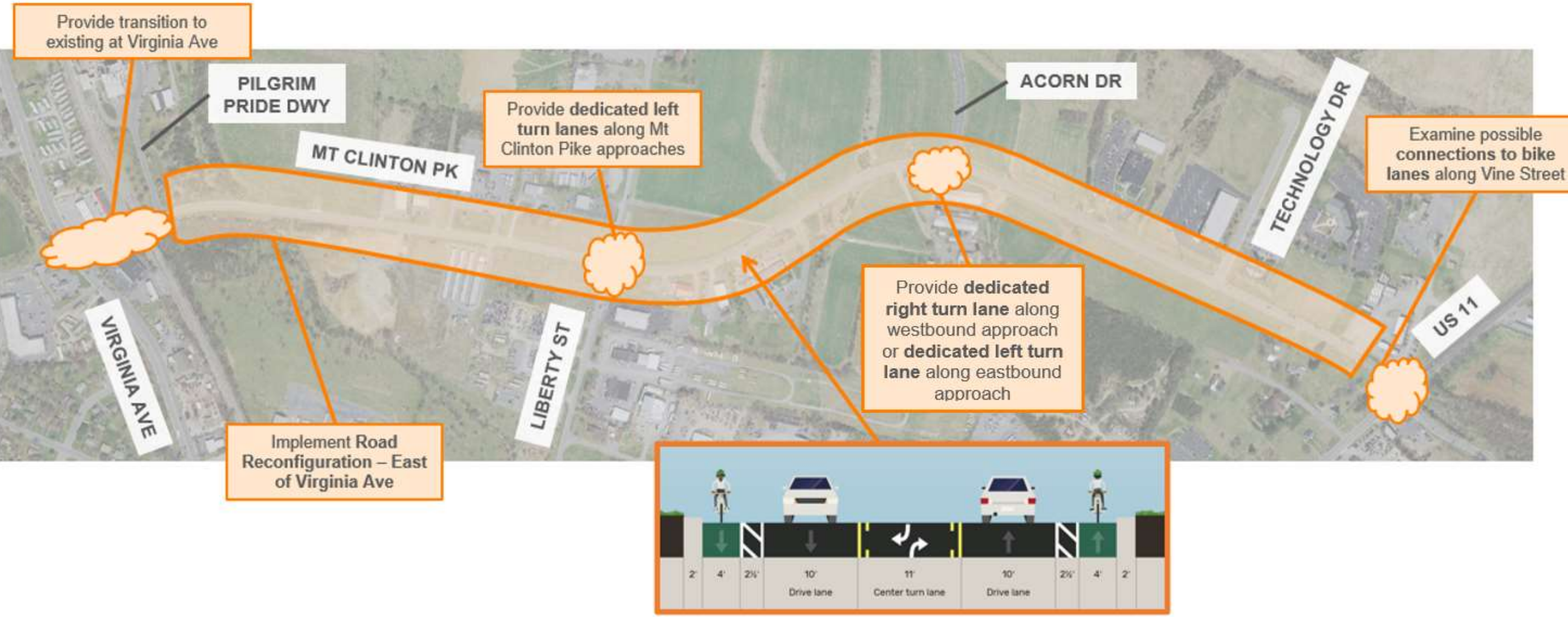


**Proposed Typical**





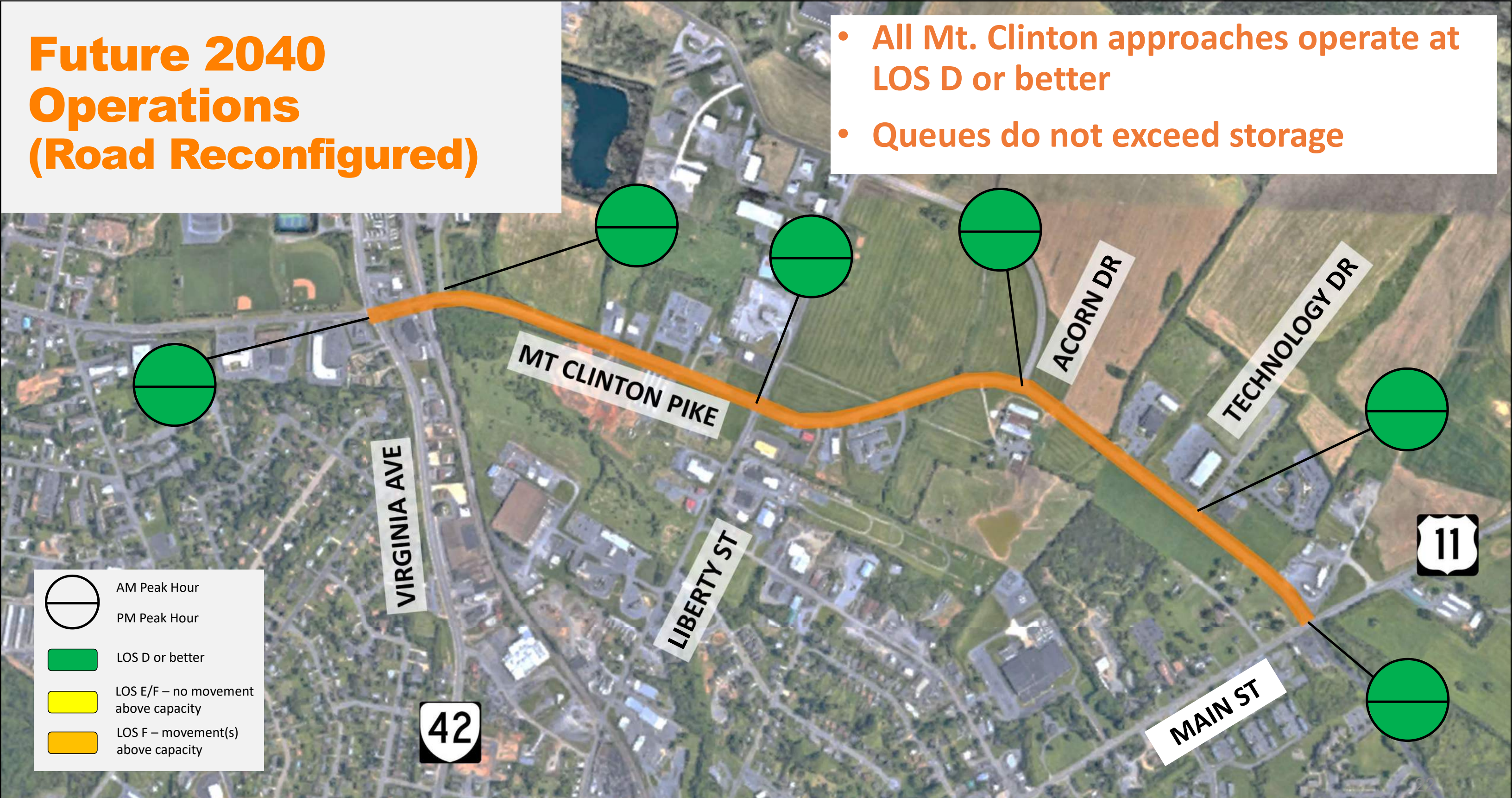
# Road Reconfiguration Design





# Future 2040 Operations (Road Reconfigured)

- All Mt. Clinton approaches operate at LOS D or better
- Queues do not exceed storage



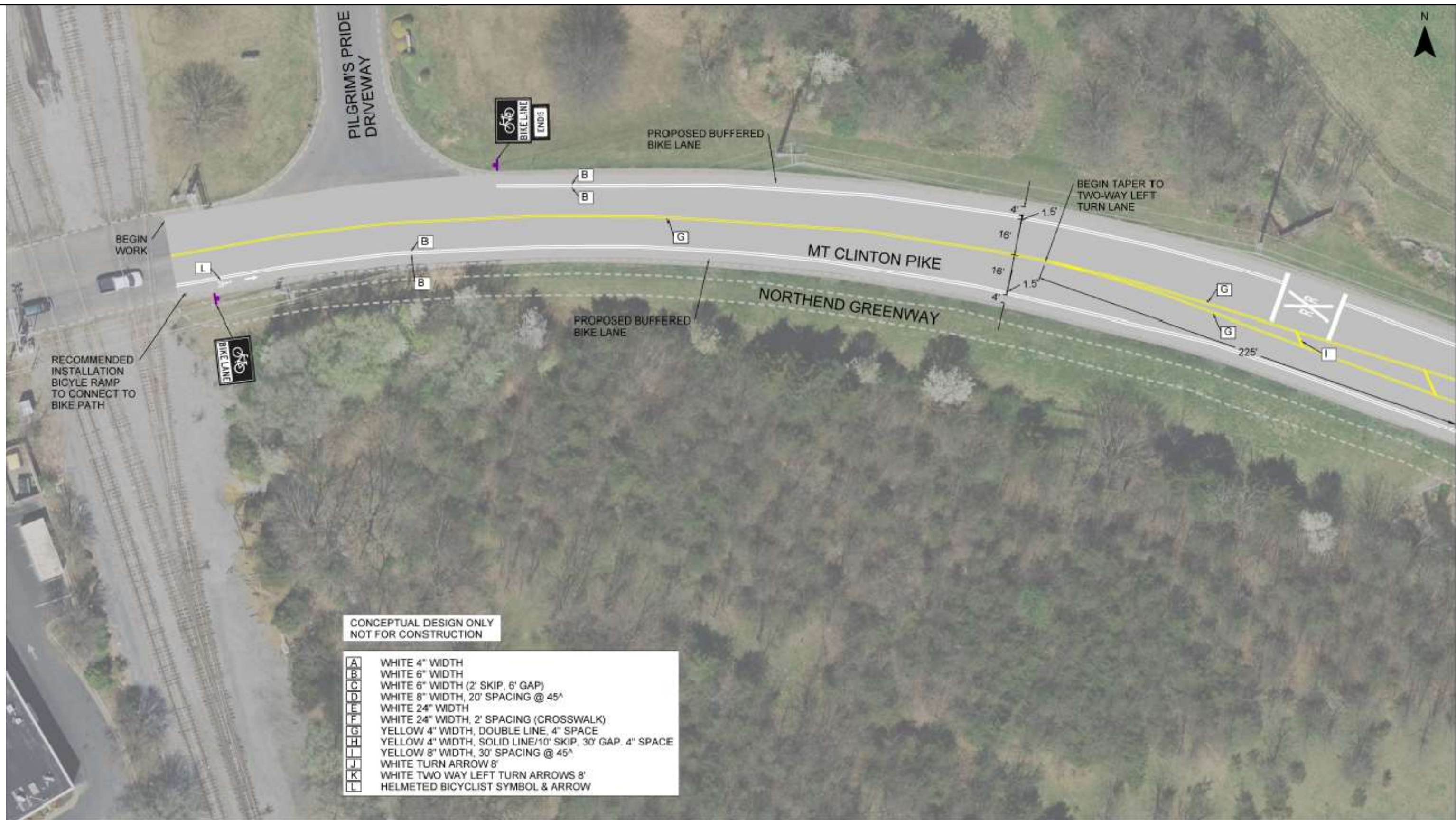


CONCEPTUAL DESIGN ONLY  
NOT FOR CONSTRUCTION

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B	WHITE 6" WIDTH
C	WHITE 6" WIDTH (2' SKIP, 6' GAP)
D	WHITE 8" WIDTH, 20' SPACING @ 45°
E	WHITE 24" WIDTH
F	WHITE 24" WIDTH, 2' SPACING (CROSSWALK)
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L	HELMETED BICYCLIST SYMBOL & ARROW









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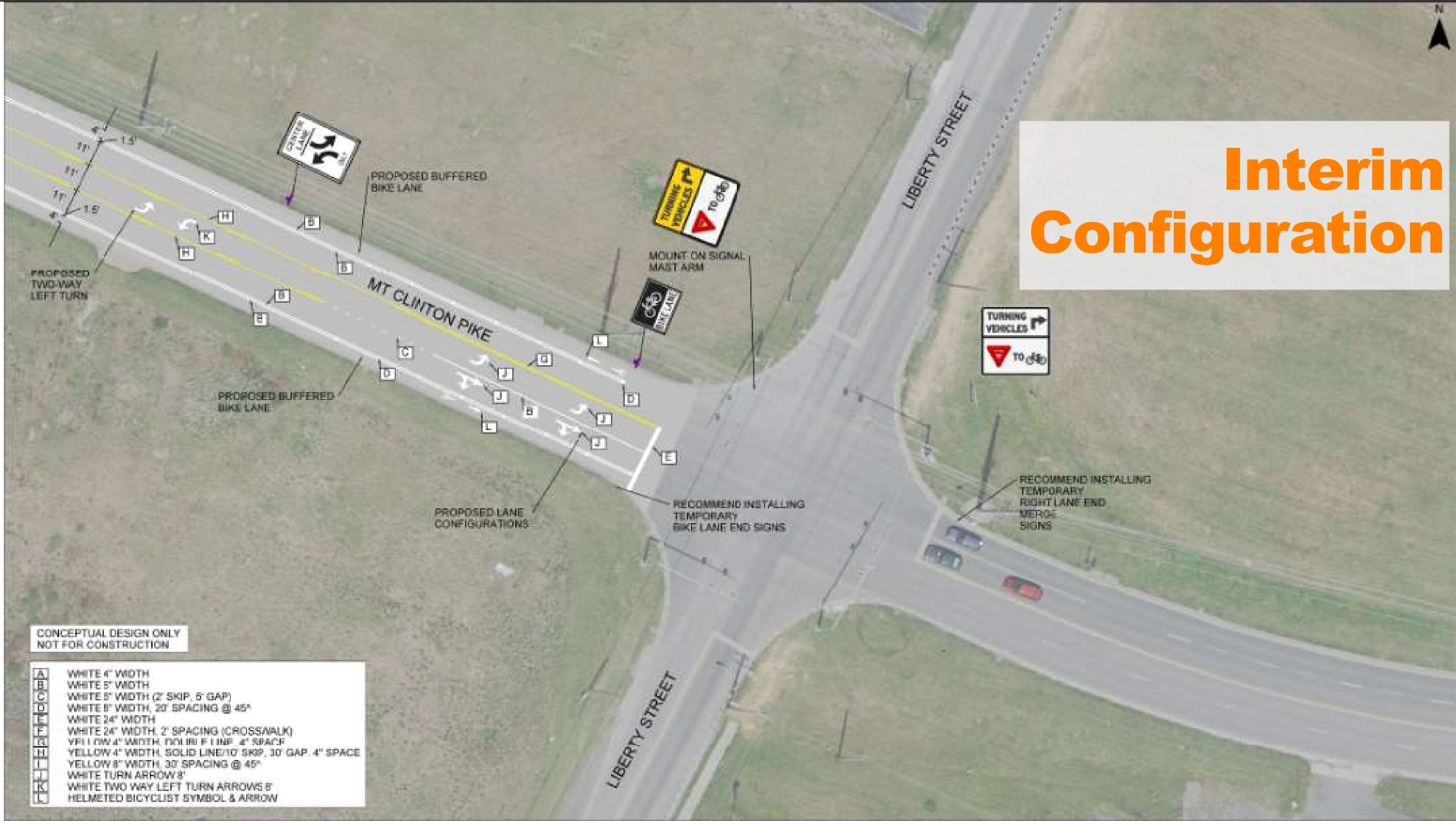
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# Interim Configuration

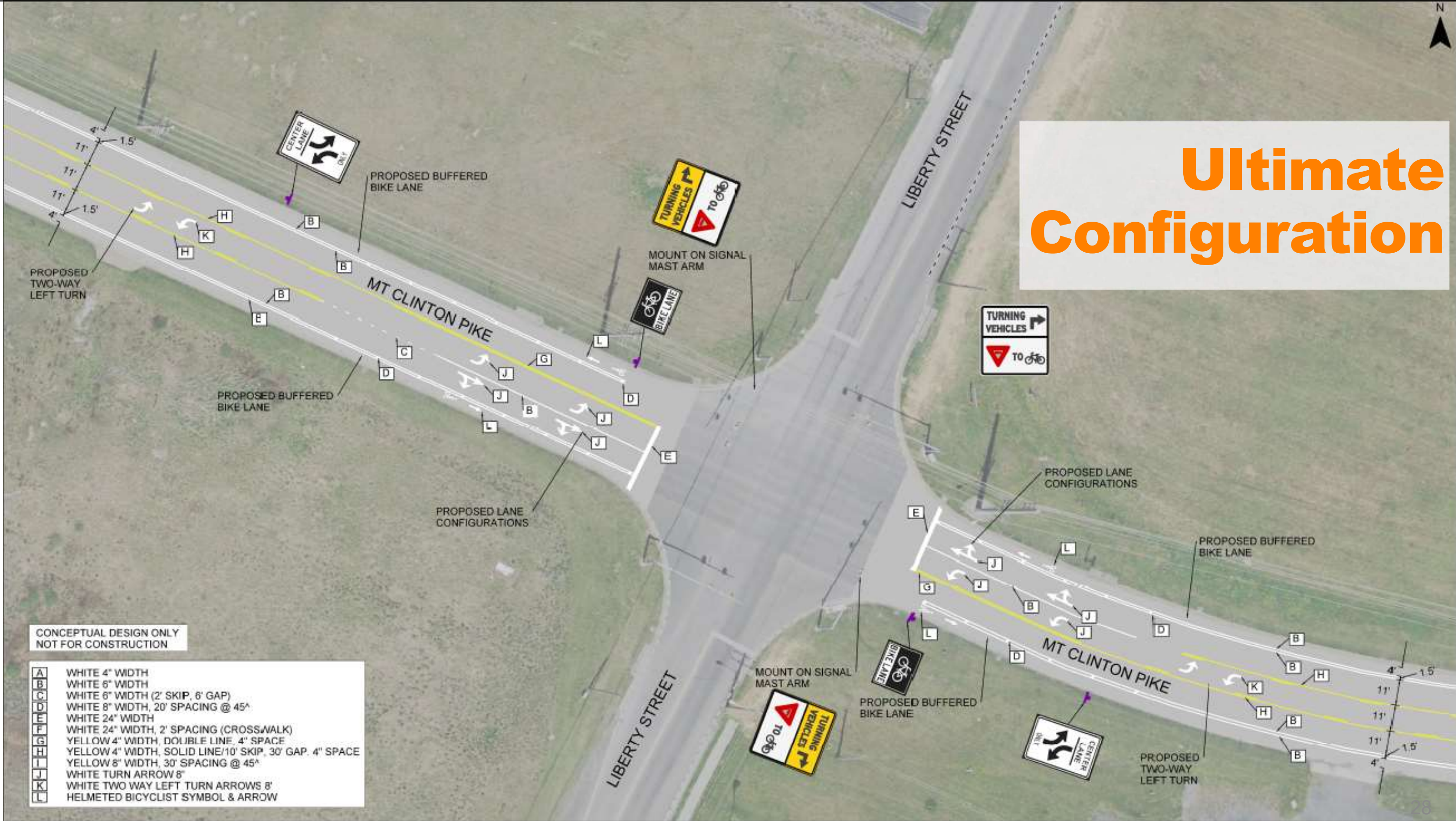


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# Ultimate Configuration



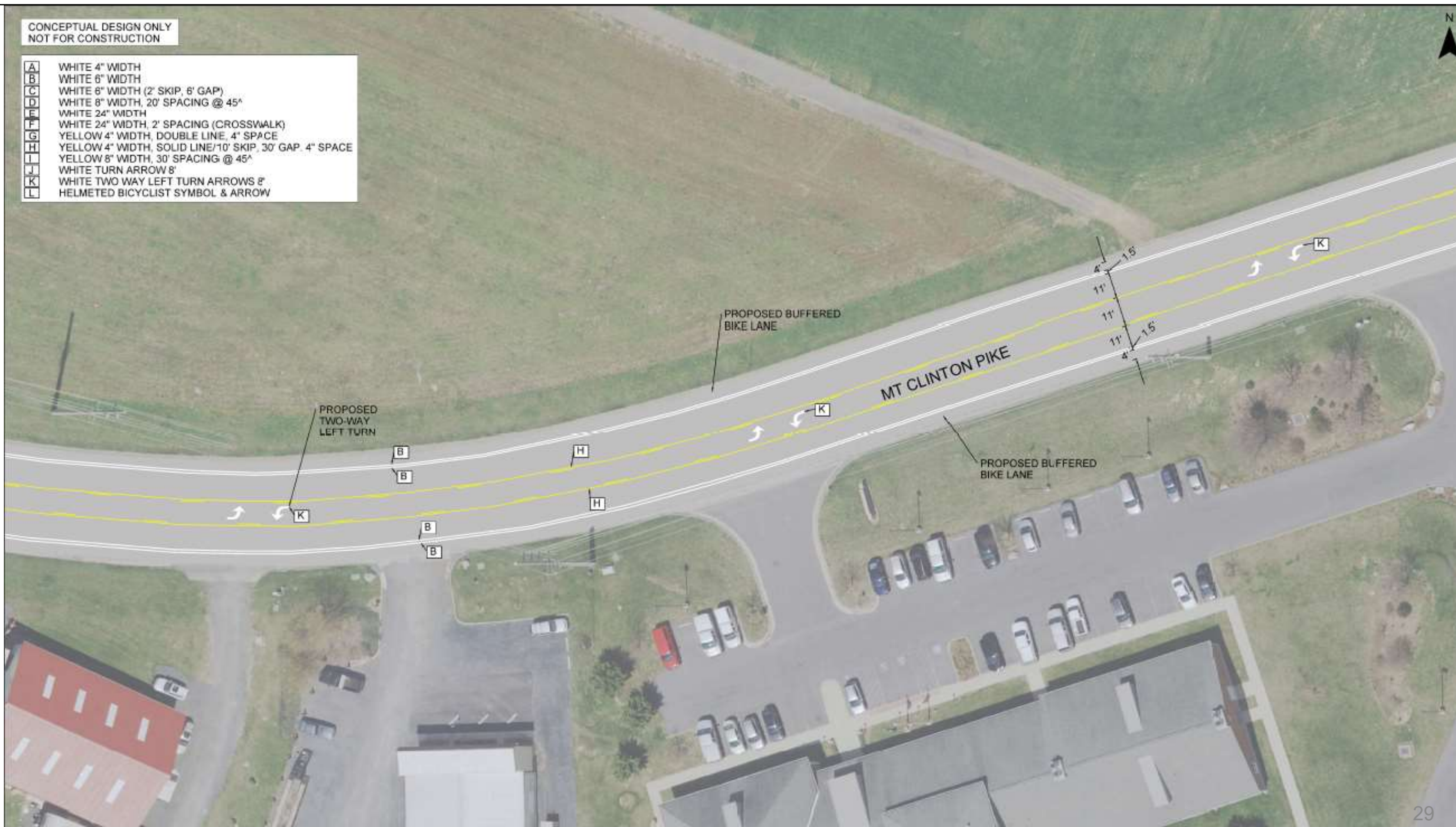
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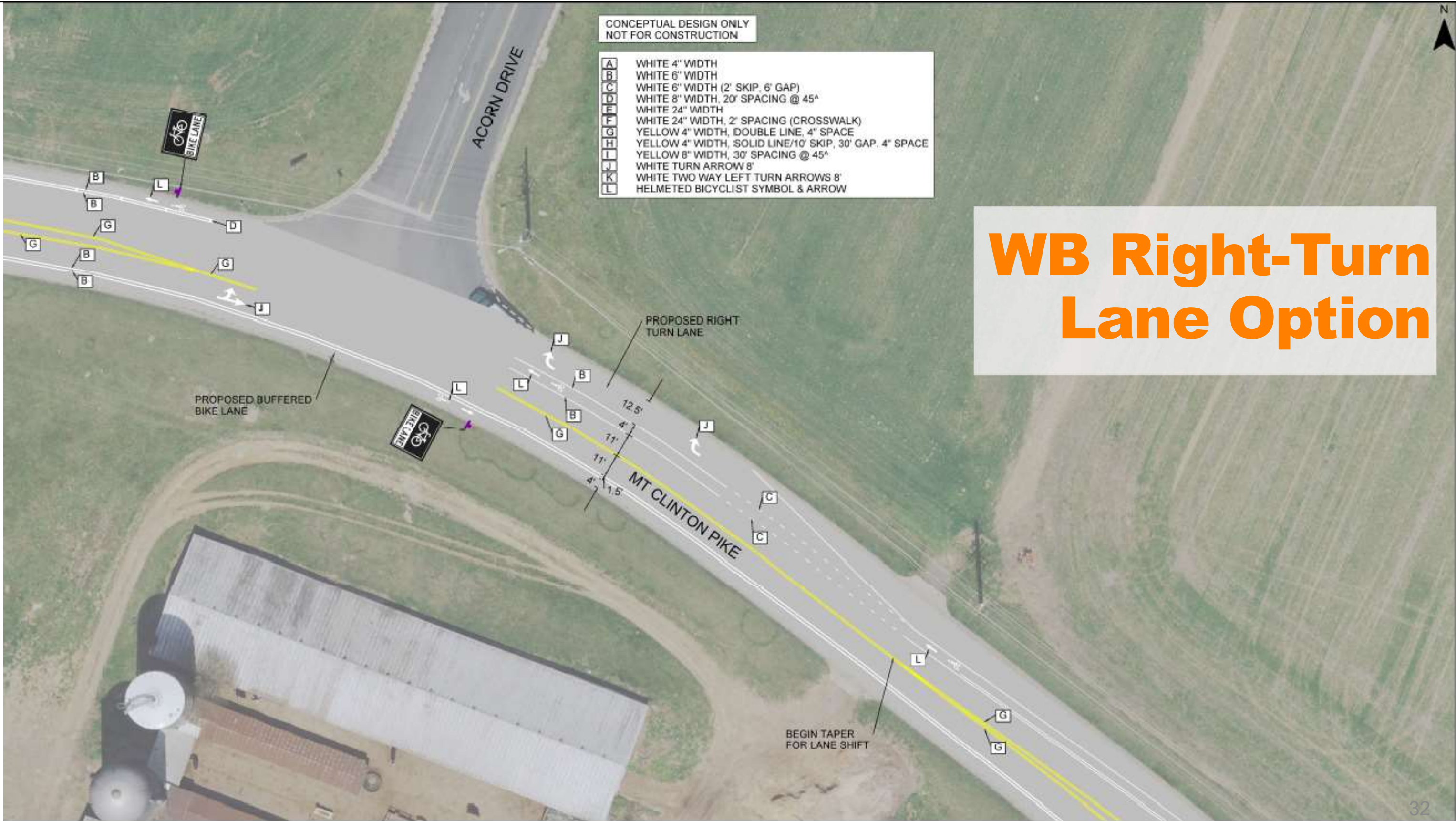
**ROAD RECONFIGURATION  
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NEXT STEPS











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FUTURE SUGGESTION:  
CONNECT PROPOSED BUFFERED  
BIKE LANE TO EXISTING BIKE LANE  
ON VINE STREET

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OPERATIONS/SAFETY

**ROAD RECONFIGURATION  
DESIGN**

NEXT STEPS



# Next Steps





# Next Steps

- City staff to coordinate public outreach and implementation





**Thank you!**

For more information

## **Contact**

Jon Crisafi

Senior Engineer

[jcrisafi@kittelson.com](mailto:jcrisafi@kittelson.com)

(202) 431-1141

