

Implementing Changes in Transportation

Wednesday, February 07, 2024

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Transportation Engineering and Operations –
Arlington County

ASHE Potomac Meeting



Introduction

Where are we?



Excellent Engagement, Technology expanding,
Safety culture, Foundational O&M shift

What's new?



MUTCD, PROWAG, Vision Zero, Budget and
Revenue Changes.....ALL very interesting topics

Signals,
Systems,
Streetlights

Develop
standards and
spec, review,
construction,
inspection and
oversight

Major network
modifications or
changes to
capacity

Capital Project
Implementation
\$8M+

Agenda

Local Environment

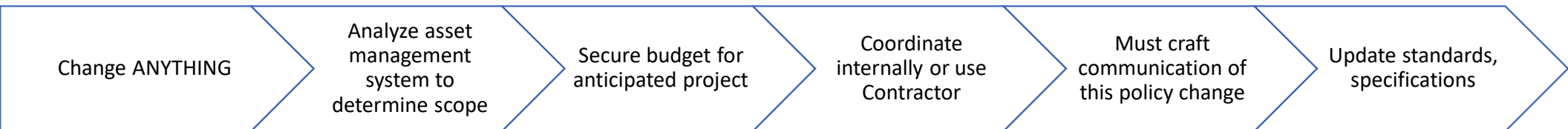
Enacting Change

Policies and Priorities using
Examples



Local Environment

- Unique situation at a smaller local jurisdiction
- Transportation policies and procedures are mostly created and implemented within the same groups with a lot of varied responsibility



Enacting New Goals

Developer Projects



Capital Projects

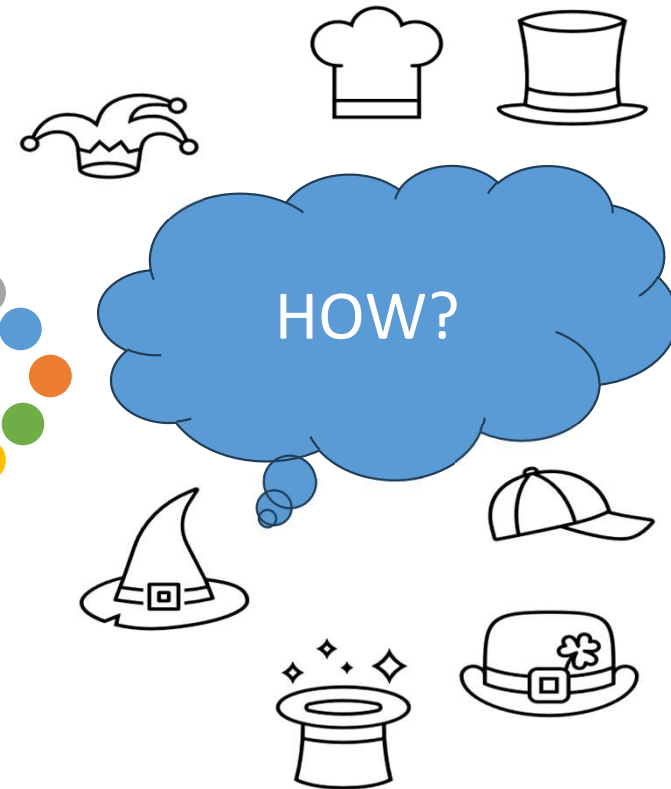


Internal Projects



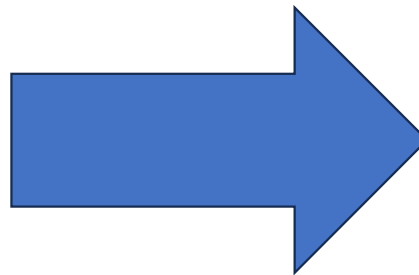
Planning
Analysis
Design
Construction
O&M

HOW?



Policies and Priorities

- Federal, State, County Regulations
 - MUTCD, PROWAG both recently updated
- County Transportation Priorities and Overarching Goals
 - Safety Emphasis
 - Economic Emphasis
 - Equity Emphasis
 - Engagement Emphasis
 - Environmental Emphasis



Paralyzing conflicting Goals
when trying to deliver
transportation projects...

Community-Identified Vision Zero Goals



Our Vision Zero Program Will Be...

Community Action Plan Goals



Multimodal



Ensure safe transportation, no matter how you get around.



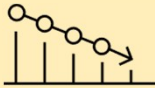
Safety-First

Put safety first on County projects and policies - big or small.



Transparent & Accountable

Be transparent, responsive, and accountable on Vision Zero progress and outcomes.



Data-Driven



Apply timely data to take action on safety.



Collaborative

Promote a culture of transportation safety for everyone.



Equitable

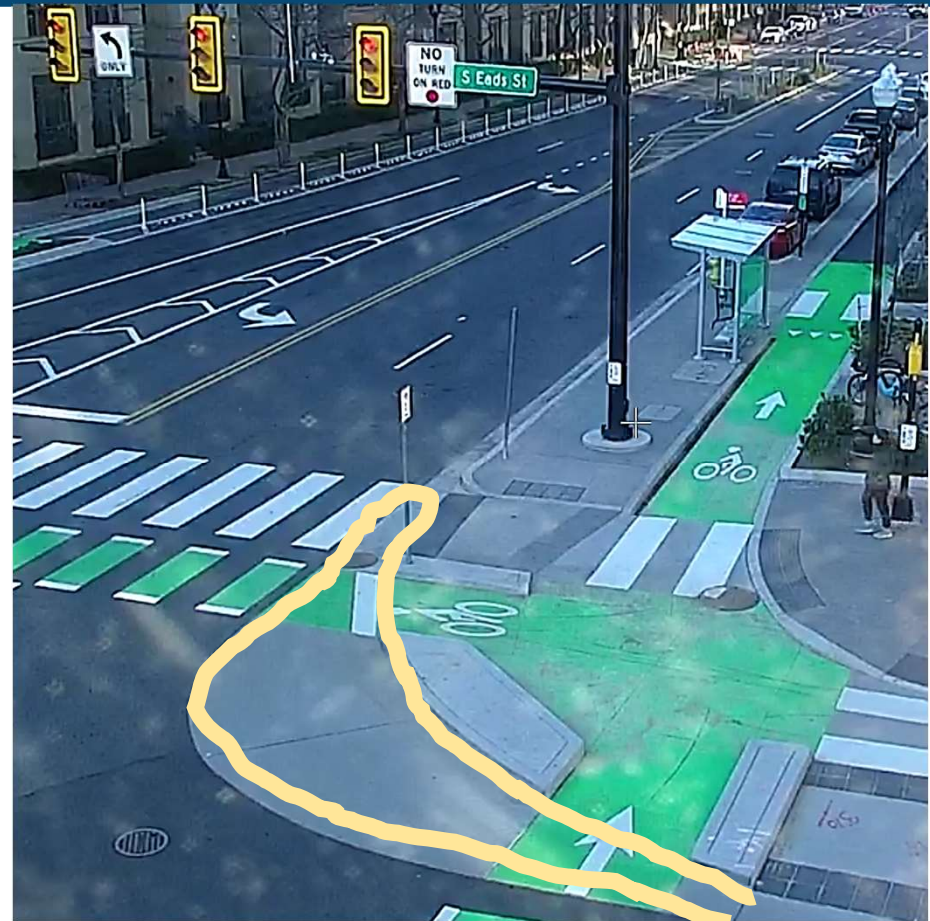
Prioritize transportation safety investments equitably in the most vulnerable communities.



Inherent Conflicts within Our Role

TE&O's vision is to create a thriving sustainable community supported by transportation choices allowing for seamless movement at any time and to any place.

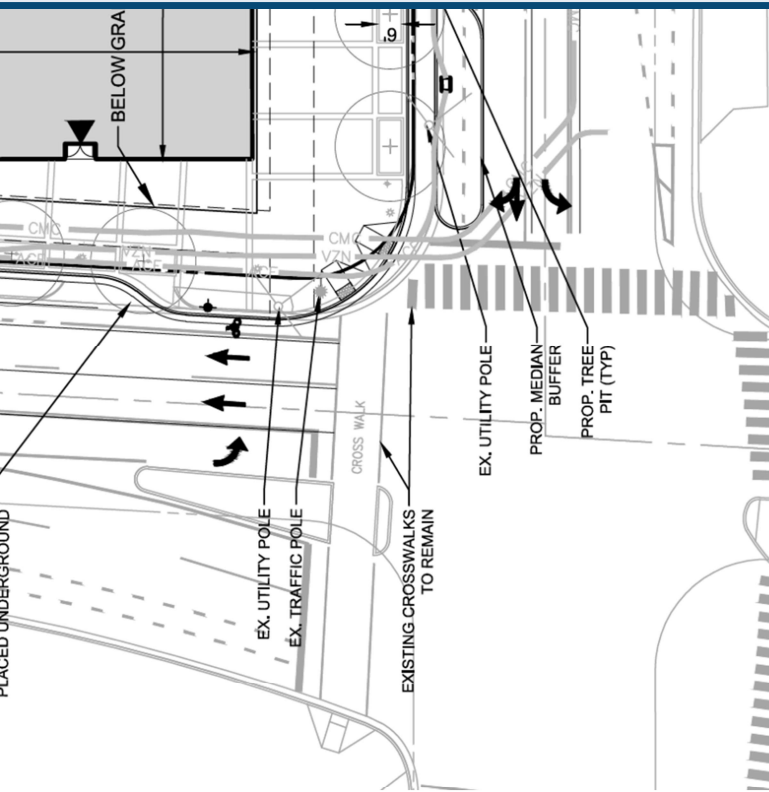
The bureau's mission is to optimize the use of Arlington County streets and related infrastructure to safely and efficiently move people and goods on the transportation network by all modes of transport.



Achieving Goals in Policy and Procedure

Example Work Process	Inherent Conflict	Difficulty in Process	Solution
Signal Optimization	Environmental Efficiency(emissions) versus Multimodal Safety	Typical measures of effectiveness focus on vehicle delay and congestion during evaluation of the network	Redesigned entire optimization process and goals
Lead Pedestrian Interval Installation	Safety for Pedestrians versus Accessibility	LPI is a proven safety tool, but often in urban areas, it's not possible to retrofit audible signals as recommended	Prioritized deployment of LPI/NTOR combinations at locations with Audible signals and invested in retrofits
Bike lanes, buffers, "complete streets"	Transit/Vehicle Capacity versus bicycle safety	Often lane reductions impact transit and buffers add complexity to transit service.	More designs now include floating bus islands. When reviewing capacity in urban context prioritize turn lanes, pick-up/drop-off over maintaining travel lanes if limited.
Left turn phasing determination	Delay versus safety	Left turn phases are requested all the time, but traditionally were rejected if they did not qualify for a safety or volume basis.	Modified approval process to remove hard limits, add more paths to approval.

Goals in Action: Metropolitan Park (HQ2)



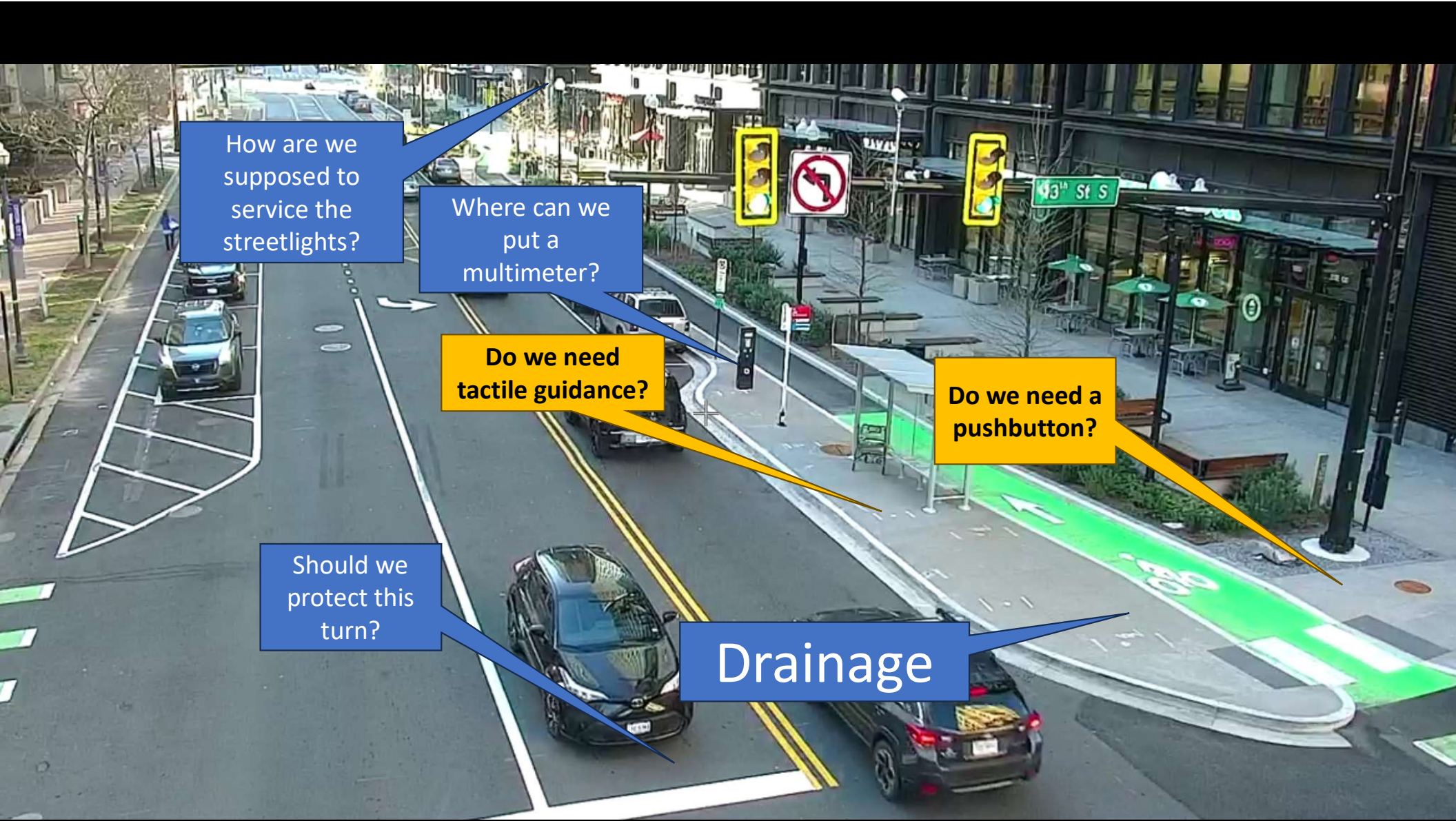
Early Design Submittal

Vision Zero

- Protected Intersection
- Floating Bus Islands
- Enhanced Markings & Signs
- Accessible Signals
- LPI/NTOR
- Concrete Enhancement to radii



Later Design Submittal



How are we supposed to service the streetlights?

Where can we put a multimeter?

Do we need tactile guidance?

Do we need a pushbutton?

Should we protect this turn?

Drainage

What did we miss? Did we really miss it?

It's always the **edges and seams**...probably true for any discipline or effort.

The opportunity to enforce or enact a new policy is not limited to design—especially where infrastructure delivery is managed with a consistent message.



Policy Guiding Selection

- Jurisdictional Grey Area
- Lower Pedestrian Counts
- High Speed
- Poor Infrastructure Condition

Prioritized for an internal project

ARLINGTON BLVD & MONTAGUE ST

BEFORE PROJECT



Project Description

This project was selected because of the lack of pedestrian accessibility for the crossing and bus stops.

The project included:

- Widening Route 50 to provide a standard pull-off for the buses driving eastbound,
- Drainage and civil improvements to add sidewalks and ramps,
- Bus stop upgrades,
- New signal infrastructure,
- ADA pushbuttons,
- Additional landscaping

Construction Summary

#	TE08
🕒	270 days
\$	650K

AFTER PROJECT



Completed: December 2023

Policy in Process: Optimization

MULTIMODAL SIGNAL TIMING FRAMEWORK: “BOTTOM-UP” APPROACH

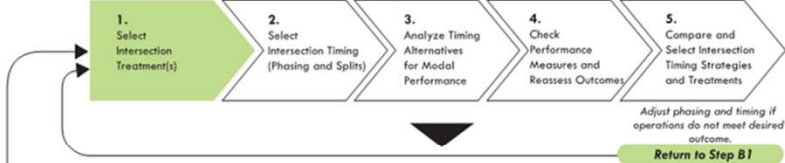
INTERSECTION FOCUSED PERFORMANCE-BASED SIGNAL OPTIMIZATION PROCESS

(Bottom-up Approach) This document outlines Arlington County's draft signal optimization framework to provide a holistic and multimodal approach to intersection operations and signal timing. Please refer to the Performance-Based Signal Optimization Framework supplemental document for explanations, considerations, and additional details on each step.

A. Planning and Selecting Operational Objectives



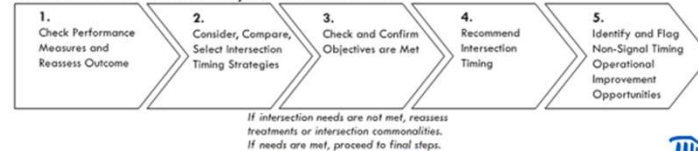
B. Intersection-level Tools and Analysis



C. Zone and Corridor Development



D. Zone and Corridor Analysis and Assessment



Return to Step C2

Return to Step B1

New Goal Oriented Measures

Crosswalk Delay

- Inputs
 - Cycle Length
 - **Pedestrian Detection**
 - Walk Duration
 - Pedestrian/Hour
- Outputs
 - Intersection Crosswalk Delay

Crosswalk Stress

- Inputs
 - Cycle Length
 - Walk Duration
 - Pedestrian Detection
 - Pedestrian/Hour
 - **Conflicting Phase (Left/Right)**
 - Opposing Vehicle Volumes
- Outputs
 - Intersection Crossing Risk

Transit Delay

- Inputs
 - Bus Frequency
 - Lane Vehicular Delay
 - **Bus Movement Type**
 - Left Turn Phasing
 - **Preferential Treatment Type**
- Bus Stop Location
- Outputs
 - Transit Delay

Vehicular Delay

- Inputs
 - Lane Group Delay
 - Peak Hour Factor
 - Saturation Flow
 - Traffic Volume
 - V/C Ration
- Outputs
 - Intersection Vehicular Delay



Questions?

- Helpful links for those seeking more information about Arlington
 - Interactive Capital Project Map:
<https://www.arlingtonva.us/Government/Programs/Budget-Finance/CIP/CIP-Interactive-Map>
 - Vision Zero Program Page:
<https://www.arlingtonva.us/Government/Programs/Transportation/Vision-Zero>
- Helpful link for those trying to report something wrong in Arlington 😊
 - Report a Problem:
<https://www.arlingtonva.us/Government/Topics/Report-Problem>