Fifth Avenue Road Diet
Ranson, WV
Perry Keller – WVDOT
Matt Mullenax, GISP – HEP/MPO
Nick Ross, PE – HDR
Objectives

- Road Diets: What, Why, and Where?
  - WVDOH Policy and Role
- Fifth Avenue Corridor – Ranson, WV
- Fifth Avenue Road Diet: Planning through Implementation
Road Diets: What, Why, & Where?

A Road Diet is generally described as "removing travel lanes from a roadway and utilizing the space for other uses and travel modes."

Road Diet Informational Guide, FHWA
Incorporating On-Road Bicycle Networks into Resurfacing Projects, FWHA
Road Diets: What, Why, & Where?

Common Road Diet Reconfigurations
Common Road Diet Reconfigurations

- 4-Lane to 5-Lane
- 2-Lane to 3-Lane
- 3-Lane to 3-Lane
- 5-Lane to 3-Lane
Road Diets: What, Why, & Where?

Benefits: Safety, Operations, Multimodal Accessibility

**Safety Benefits**

Mid-Block Conflict Points

Intersection Conflict Points
Road Diets: What, Why, & Where?

Benefits: Safety, Operations, Multimodal Accessibility

**Operational Benefits**

- **Separating Left Turns:** Separating left-turning traffic has been shown to reduce delays at signalized intersections.

- **Side-street Traffic Crossing:** Side-street traffic can more comfortably enter the mainline roadway reducing side-street delay.

- **Speed Differential Reductions:** The reduction of speed differential due to a Road Diet provides more consistent traffic flow and less "accordion-style" slow-and-go operations along the corridor.
Road Diets: What, Why, & Where?

Benefits: Safety, Operations, Multimodal Accessibility

- Multimodal Accessibility
  - Reduced Pedestrian Crossing Distances
  - Addition of Dedicated Bicycle Facility
  - Transit Priority Lanes and Intersection Treatments
Good candidates for a road diet include:

- **Crash Clusters**
  - Rear-end, Left-turn

- **Excessive Speeds**
  - Running speeds in excess of design speed

- **Lack of Accessibility for all Modes**
  - Missing bike infrastructure, poor walkability
Road Diets: What, Why, & Where?

Traffic Characteristics:

Modeling Flow Chart for Road Diets
[from 4/5 lanes to 3 lanes]

ADT

25K+

NO

16K+  
Or \( \leq \frac{1}{6} \) mile spacing  
between signals

Corridor Analysis Required

Synchro Model

30%+ Travel Time  
2+ LOS Change

Modify Design

TO Manager Approval

SO Manager Approval

Tweak

<30% TT Change

Corridor LOS = D or better

\( \leq \) LOS E at critical approaches

YES

10 - 16K or

\( \frac{1}{4} \) to \( \frac{1}{2} \) mile signal spacing

YES

Key Intersection Analysis Required

>700 vphpd

>200 vphLT

Synchro Model

LOS & Critical Approach \( \leq \) E

TO & SO Manager Approval

<700 vphpd

<200 vphLT

No Model Required

<700 vphpd

<200 vphLT

Modify Design

SOURCE: CITY OF SEATTLE

NOTES:  

vphpd = Vehicles per hour per direction  
vphLT = Left-turning vehicles per hour  
ADT = Average Daily Traffic  
LOS = Level of Service
WVDOH Policy & Role

State vs. Local Control
WV State Innovation Council selected Safe Transportation for Every Pedestrian (STEP) as EDC-4 2017-2018 Innovation.

STEP promotes five cost-effective safety countermeasures, including road diets.

FHWA considers road diets a proven safety countermeasure that can reduce vehicle speeds, the number of lanes pedestrians cross and create space to add new pedestrian facilities.
FHWA held six-state Virtual Peer Exchange on Road Diets in March (DE, IL, KS, NV, ND & WV).

FHWA-WV, WVDOH, MPOs and local government representatives participated (22 total).

WV attendees identified several action items:
- Educating the public and other stakeholders.
- Promoting design flexibility.
- Using GIS mapping to review four-lane roads.
- Reviewing models of hierarchy.
- Generating potential Road Diets lists at the local level relating to paving projects.
- Providing bicycle/pedestrian crash data to the cities.
GIS analysis revealed Fifth Avenue as a possible road diet candidate.

Only candidate identified in Morgan, Berkeley and Jefferson Counties.

Recommended traffic counts and analysis prior to conversion.

Project supported by City of Ranson.
City of Ranson

- Adjacent to Charles Town in Jefferson County.
- Incorporated 1910.
- Pop. 4,941.
- 5,169 acres.
- Home of Hollywood Casino and Race Track, Jefferson Memorial Hospital, American Public University System.
- Numerous Federal brownfields, urban development grants, as well as two TIGER grants.
Fifth Avenue

- CR 17/4.
- Major east/west route through Ranson.
- Connects WV9 to downtown, Jefferson Memorial Hospital and Hollywood Casino and Race Track.
- 4,100 ADT (2017); projected 5,250 ADT (2037).
- Recipient of multiple TAP grants for Streetscape Project (South Mildred to Hollywood Drive).
Fifth Avenue - Road Diet Section

- Hollywood Drive to Flowing Springs Road (~0.55 miles).
- Functional Class:
  - Federal – Major Collector (Urban)
  - State – Feeder
- Alternates from four lanes to five lanes w/ LTL.
- Sidewalks on both sides; crosswalks at driveways.
- PSL = 30 mph
- Section built in 2014 upgrading old Flowing Springs Road I/S, addressing horse crossing delays, congestion to Casino/Racetrack.
Road Diet – Planning Phase

- Problem statement > Goals > ”Must-haves”
  - Identify issues in need of correction
    - Crash clusters, excess speeds, lack of transit/bike/ped
  - Identify goals aligned with problem statement
    - Separate turning/through movements, lower running speeds, add transit/bike lanes, reduce ped crossing distances
  - Identify “Must-haves”
    - Minimum vehicle capacity, curb frontage usage, bicycle facility type, lane width

- Tools – high-level traffic counts, typical section layout (Streetmix)
Road Diet – Planning Phase

- Fifth Avenue
  - Problem: Excess Speeds & Lack of Bike Facility
  - Goals: Reduce Running Speeds & Add Dedicated Bike Facility
  - “Must-haves”: One through-lane & Dedicated Bike Facility
Road Diet – Planning Phase

4-Lane to 3-Lane w/ Directional Bike Lanes
Road Diet – Planning Phase

4-Lane to 3-Lane w/ Two-Way Cycle Track
Road Diet – Planning Phase

Existing 5-Lane Section
Road Diet – Planning Phase

Bicycle Facility Options within 5-Lane Section
Road Diet – Design Phase

- Define Design Criteria
  - Minimum Lane Width (Auto & Bike)

- Define Access Points and Intersection Layout
  - Intersections > Segments
  - WVDOH Interim Approval for Green Paint

- Develop Multimodal Concept into Design
  - Bike facility based on space > separated or protected?

- Tools – refined traffic counts w/turning movements, traffic simulation (Synchro), Quality of Service
Road Diet – Implementation Phase

- Phased Approach
  - Existing>Interim>Permanent

- Stand-alone Project

- Incorporated Maintenance
  - Re-striping with planned paving
  - DOH>MPO Group Projects empower MPOs, early action meetings for paving projects