SYSTEMIC SAFETY IMPROVEMENTS

Projects being done along County Routes in Cumberland County

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Engineering office with:
- Staff of 7
  (5 full-time; 2 part-time)
- Managing infrastructure including:
  - 540 miles of County Roads
  - 50 traffic signals and 19 flashers
  - 54 bridges and 169 minor bridges
  - Provide assistance to remaining Public Works divisions (Roads, Mosquito Control, Traffic Safety) on an as-needed basis

The department’s annual construction budget has averaged $8 million per year, but with the reauthorization of the Transportation Trust Fund, it has increased to $12.5 million annually:
- about $9.3 million, State Aid
- about $2.2 million, Federal Aid
- about $1 million, County bonds

In addition, the county receives additional funding (HSIP, CMAQ, LAIF) on an individual project basis.
Highway Safety Improvement Program (HSIP)

- HSIP is a core Federal-Aid program with the purpose to achieve a significant reduction in highway fatalities and serious injuries on all public roads and requires a data-driven, strategic approach to improving highway safety with a focus on performance.

- Cumberland County’s approach to HSIP is to focus on both “hot-spot” and systemic projects:
  - The “hot-spot” projects require more in-depth data collection and analysis to determine appropriate site specific improvements related to the crash history.
  - The systemic projects apply a given improvement type over a large number of applicable locations to counteract more “random” crash events.
The Systemic Approach
Starting from Scratch – Network Screening Lists

- The network screening lists shown below were provided to Cumberland County – these took crash information for a given timeframe and determined weighted “scores” for each location based on a number and severity of crashes:
  - Pedestrian intersection hot spots.
  - Pedestrian corridor hot spots.
  - Intersections hot spots.
  - High Risk Rural Roads (HRRR) hot spots.
  - Roadways Eligible for Centerline Rumble Strips
Cumberland County HRRR Locations
FHWA Proven Safety Countermeasures

- Roundabouts
- Corridor Access Management
- Backplates with Retroreflective Borders
- Road Diet
- Medians and Pedestrian Crossing Islands in Urban & Suburban Areas
- Pedestrian Hybrid Beacon
- Longitudinal Rumble Strips and Stripes on Two-Lane Roads
- Safety Edge SM
- Enhanced Delineation and Friction for Horizontal Curves
Centerline Rumble Strips

• NJDOT criteria
  o Twenty (20) foot minimum pavement width.
  o Speed Limit of 35 miles per hour or greater.
  o Two-lane Urban or Rural Roadways.

• Cumberland County criteria
  o “New” asphalt roadways (10 years old or less).
  o Limit installation areas due to residential density.

  ❏ Approximately 150 miles selected across eleven municipalities.
Actual Construction and After

• Night time construction
  o Less Traffic to impact
  o Safer for construction workers & inspectors
  o Short duration – several miles constructed nightly

• Lessons Learned
  o Age of existing asphalt
  o Seal Coating

  o Complaints / Questions:
    ✓ Residential - Noise
    ✓ Roadway Users
    ✓ Centerline versus white line
    ✓ Why?
High Friction Surface Treatment (HFST)

• Pros:
  o Proven Safety Measure
  o Safe for all Vehicle Types
  o Durability

• Cons:
  o High Unit Cost
  o Specialized Trade
    □ Currently no contractors located within the region installing
    □ Improper installation limits usefulness and life expectancy
Current Application – HFST at Curves

• Installation of High Friction Aggregate on Existing Asphalt Surface with Epoxy Binder:
  o Greatly increases the Friction between Roadway Surface and Vehicle Tires.
  o Durable – life expectancy equal to or exceeding the asphalt pavement itself.

• As part of the project, update and upgrade existing safety features:
  o Review signage at each site and update as needed:
    □ Retroreflectivity
    □ Size
    □ Location
    □ Spacing
Selecting the Locations

- HRRR Screening List
- Other Locations “Known” to Engineering Department
  - Crash History
  - Municipalities
  - Residents
  - Geometry
- Existing or Proposed Pavement Condition
  - Only as durable as the asphalt it is placed on.
  - Similar to rumble strips, only “recent” pavement locations selected.
- Original 28 locations has been expanded to 39 locations in final application (18 HRRR; 21 non-HRRR)
Ongoing Topics for Discussion

• Network Screening Lists
  o Aging of Data (current list: 2011 through 2013)
  o Completed project locations still on Current List

• Project Delivery
  o Timeline from application to construction substantial:
    ✓ Rumble Strips – 22 months from application submission to
      construction Notice to Proceed.
    ✓ HFST – 16 months so far…
    ✓ This extended period limits flexibility to update the
      construction to latest information (seal coating).
  o Centralized review process eliminates interactions
    with the Local Public Agency – the entity not only
    selecting the project locations, but having the most
    detailed knowledge of them.

• Separate HRRR & non-HRRR projects
Discussion / Questions?

Thanks:

• Cumberland County Board of Chosen Freeholders
• Federal Highway Administration
• New Jersey Department of Transportation
• South Jersey Transportation Planning Organization