WILMAPCO DART Route 25 Analysis

**Overview of Model Process**

- Land Use Data
  - Population & Employment
- Road Network (Projects)
- Transit Network (Routes)

**TRIP GENERATION**
- Trips (by Purpose)

**TRIP DISTRIBUTION**
- Origins & Destinations

**MODE CHOICE**
- Trips (by Mode)

**AUTO ASSIGNMENT**
- Volumes

**TRANSIT ASSIGNMENT**
- Ridership
WILMAPCO DART Route 25 Analysis

Transit Routes

Bus
- Local
- Inter-county

Rail
- Local Rail (Newark to Claymont)
- Regional Rail (Newark to Philly)
WILMAPCO DART Route 25 Analysis

Transit Access

- **Red Lines**: Walk To Transit
- **Light Blue Lines**: Drive to Bus
  - Park N Ride
  - Kiss N Ride
- **Purple Lines**: Drive to Rail
Typical Coding Data:

**Highway:**
- Functional Class
- Lanes
- Speeds
- Capacities

**Transit:**
- # Buses (Peak/Offpeak)
- Seats/Bus
- Load Factor
- Headways
- Dwell Times
Typical Calibration Data:

Highway:
- AADT (Traffic Summary)
- Counts
- Turning Movements
- Surveys (O-D)

Transit:
- Ridership
- Transit Checks (Ons & Offs)
- # Bikes
- Counts
WILMAPCO DART Route 25 Analysis

Transit Model

Part of Standard DelDOT/MPO Model

Model Adapted from 2005 “Newark to Dover Rail Study” by the “Delaware Commuter Rail Task Force”

Original Model used TP+ (no longer available)
DMJM+Harris
BMI-SG (VHB) Frank Speilberg, Jay Evans, etc.

Current Model uses CUBE Voyager 6.0
WILMAPCO DART Route 25 Analysis

Run #1: “WITHOUT Route 25 Extension”

Run #2: “WITH Route 25 Extension”

Emissions

Trips (by Mode)

AUTO ASSIGNMENT

Volumes

TRANSIT ASSIGNMENT

Ridership

EMISSIONS WITHOUT

EMISSIONS WITH

MOVES (DNREC Process)
<table>
<thead>
<tr>
<th>Scenario</th>
<th>Rt 9 Roadway Section</th>
<th>Daily VMT</th>
<th>Emissions (tons/year)</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>NO\textsubscript{X}</td>
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<tr>
<td>No Bus Service</td>
<td>Hamburg Rd (Tybouts PNR) to Wrangle Hill Rd</td>
<td>16,105</td>
<td>7.11</td>
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<tr>
<td></td>
<td>River Rd to Clinton St</td>
<td>15,583</td>
<td>6.88</td>
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<td></td>
<td>New Castle County</td>
<td>16,195,649</td>
<td>6.841</td>
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<td>New Route 25 Bus Service</td>
<td>Hamburg Rd (Tybouts PNR) to Wrangle Hill Rd</td>
<td>15,943</td>
<td>6.88</td>
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<td></td>
<td>River Rd to Clinton St</td>
<td>15,579</td>
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<tr>
<td></td>
<td>New Castle County</td>
<td>16,183,773</td>
<td>6.834</td>
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<tr>
<td>Project VMT/Emissions Reduction</td>
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<td>166 (0.52%)</td>
<td>.39 (2.76%)</td>
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<td>County VMT/Emissions Reduction</td>
<td></td>
<td>11,876 (0.07%)</td>
<td>7.6 (0.11%)</td>
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</table>
A reduction in VMT and emissions was observed from the results of the modeling. These reductions are tabulated below and summarized as follows:

- A daily VMT reduction of **119** was observed for both sections of roadway. This represents a 0.5% reduction in VMT by extending the bus service.
- An annual NOx reduction of 0.39 tons was observed, which accounts for a 2.8% reduction.
- CO was reduced by 2.07 tons and VOC by 0.29 tons, both indicating a 2.8% reduction from existing conditions.
- Particulates (PM$_{2.5}$) were reduced by 9.8%, an annual reduction of 0.02 tons was observed.
- CO$_2$ emissions were reduced by 19.7 tons, a reduction of 0.5% annually.
Thank You!