Seven Corners Existing Traffic Conditions

Preliminary Results

Seven Corners Task Force
July 11, 2013

Context

Items Presented to the Task Force

- Demographics of the Area
- Development Quantification
  - Housing Analysis
- Real Estate Market of the Area
- Parks Overview (urban park standards)
- Public Facilities Overview
- Connectivity Group Recommendations
- Existing Traffic Conditions

Agenda

- Data Collection and Project Methodology
- Peak Period (AM, PM, and Saturday) Results
  - Origin-Destination
  - Intersection Analysis
  - Queuing
- Conclusions
- Next Steps

Data Collection

- Tube counts (7 locations)
- Turning movement counts (17 intersections)
- Intersection data
  - Fairfax County Department of Transportation (19 intersections)
  - Synchro files (Fairfax County, VDOT, City of Falls Church)
  - Signal Timing
- Site visit
  - April 11, 2013, during a.m. and p.m. peak periods

Data Collection: Surrounding Intersections

Data Collection: Interchange Intersections

Data Collection

- Collection dates
  - Wednesday, April 10th
  - Saturday, April 20th
- Peak hours
  - Morning: 7:45 – 8:45 a.m.
  - Afternoon: 5:30 – 6:30 p.m.
  - Saturday: 12:00 – 1:00 p.m.

Origin-Destination (O-D) Analysis

- Skycomp, Inc.
- April 16, 2013 from 7:30 - 8:50 a.m. and 4:35 - 5:50 p.m.
- Time-lapse aerial photography
  - Vehicle movements traced both forward and backward to capture trips
  - One image per second
- Determine traffic volume estimates and O-D travel patterns for the eight major arterial approach routes
  - External-to-external
  - External-to-internal
  - Internal-to-external

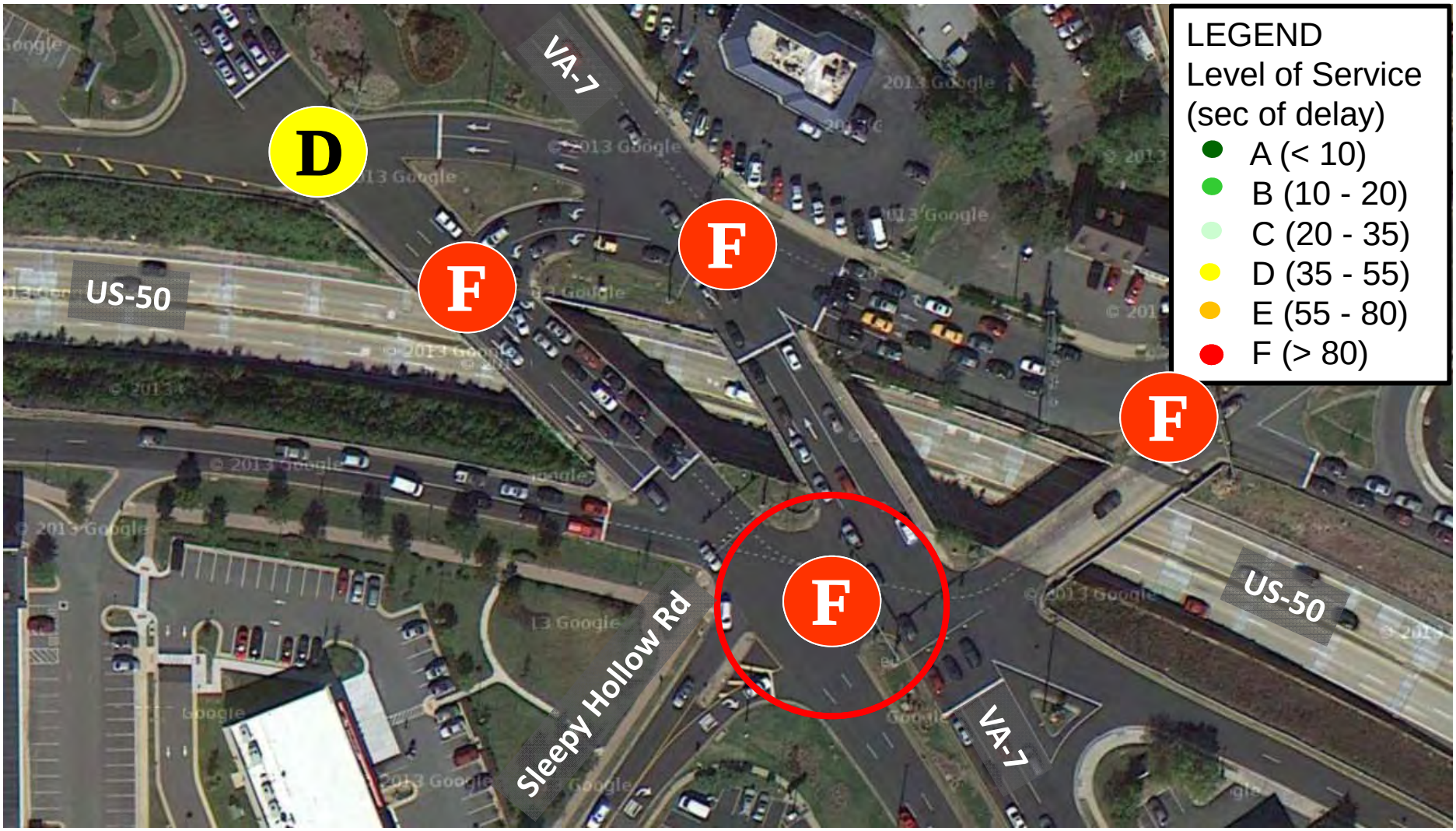
Six Largest O-D Travel Patterns – AM Peak

Travel Patterns AM Entrance – VA-7 Westbound

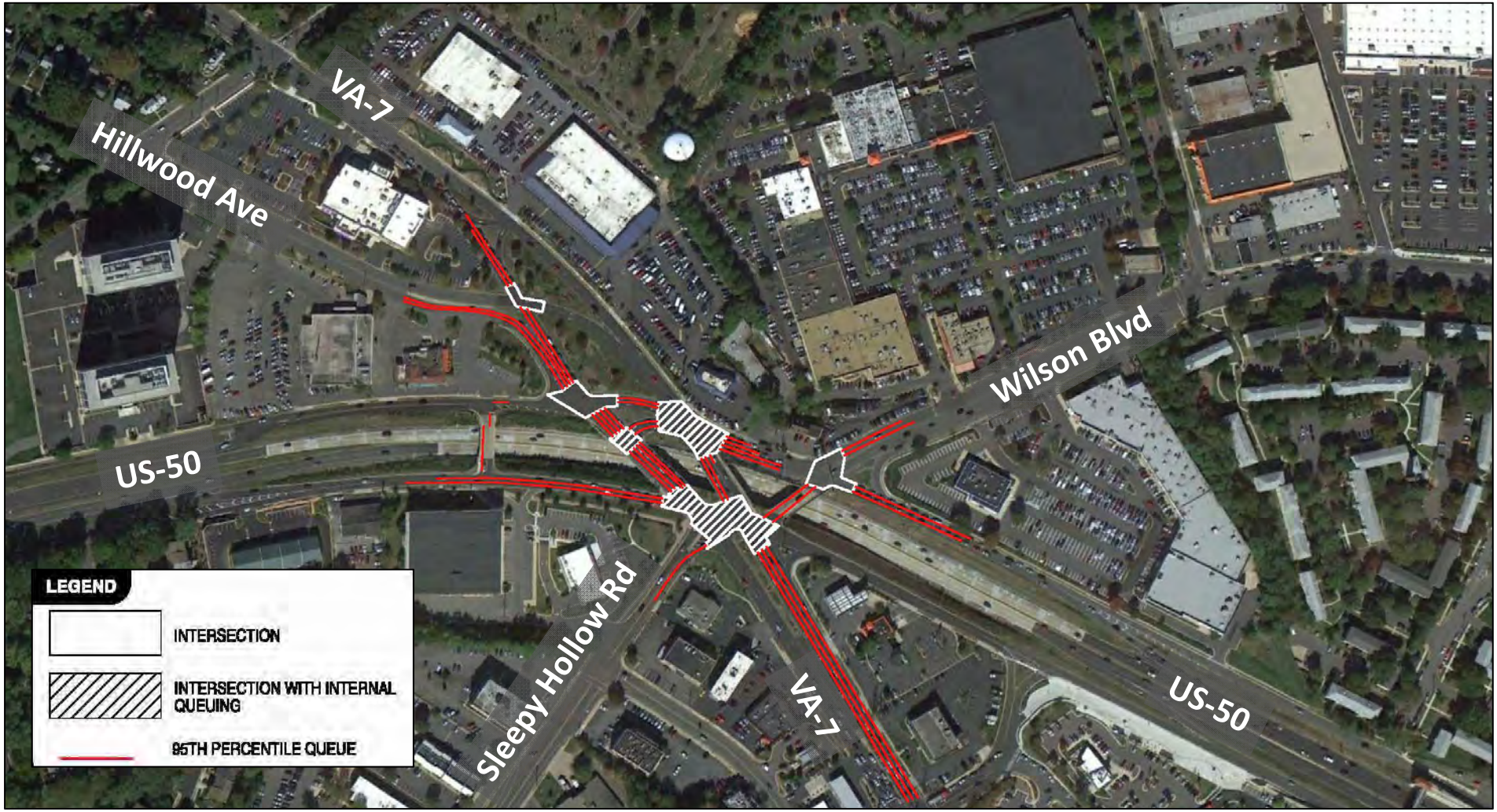
Travel Patterns AM Exit – US-50 Eastbound

Level of Service for 19 Outer Intersections (AM Peak Hour)

Level of Service for Interchange Intersections (AM Peak Hour)



AM – Interchange Intersections – Queue Length



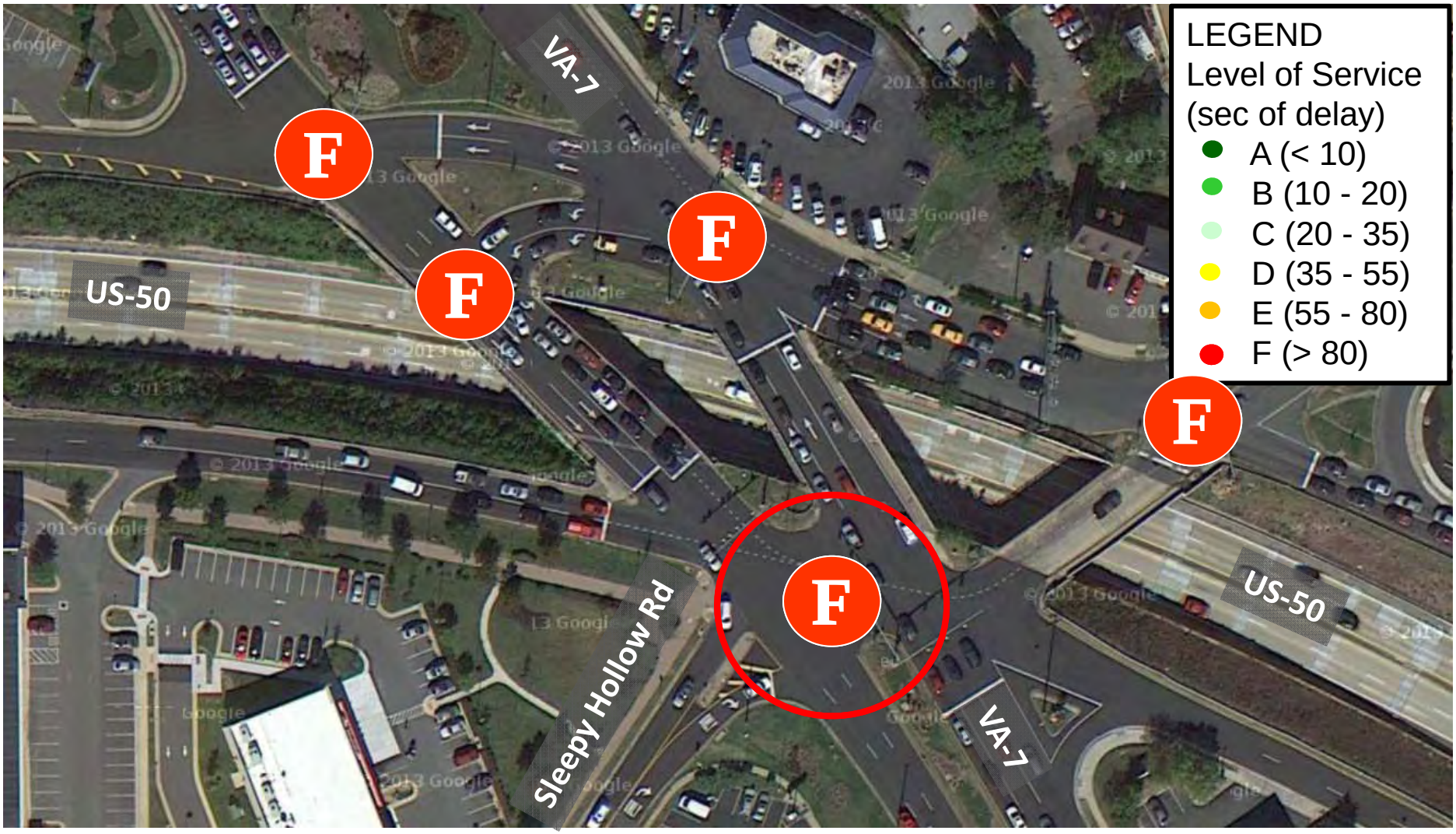
Six Largest O-D Travel Patterns – PM Peak

Travel Patterns PM Entrance – US-50 Westbound

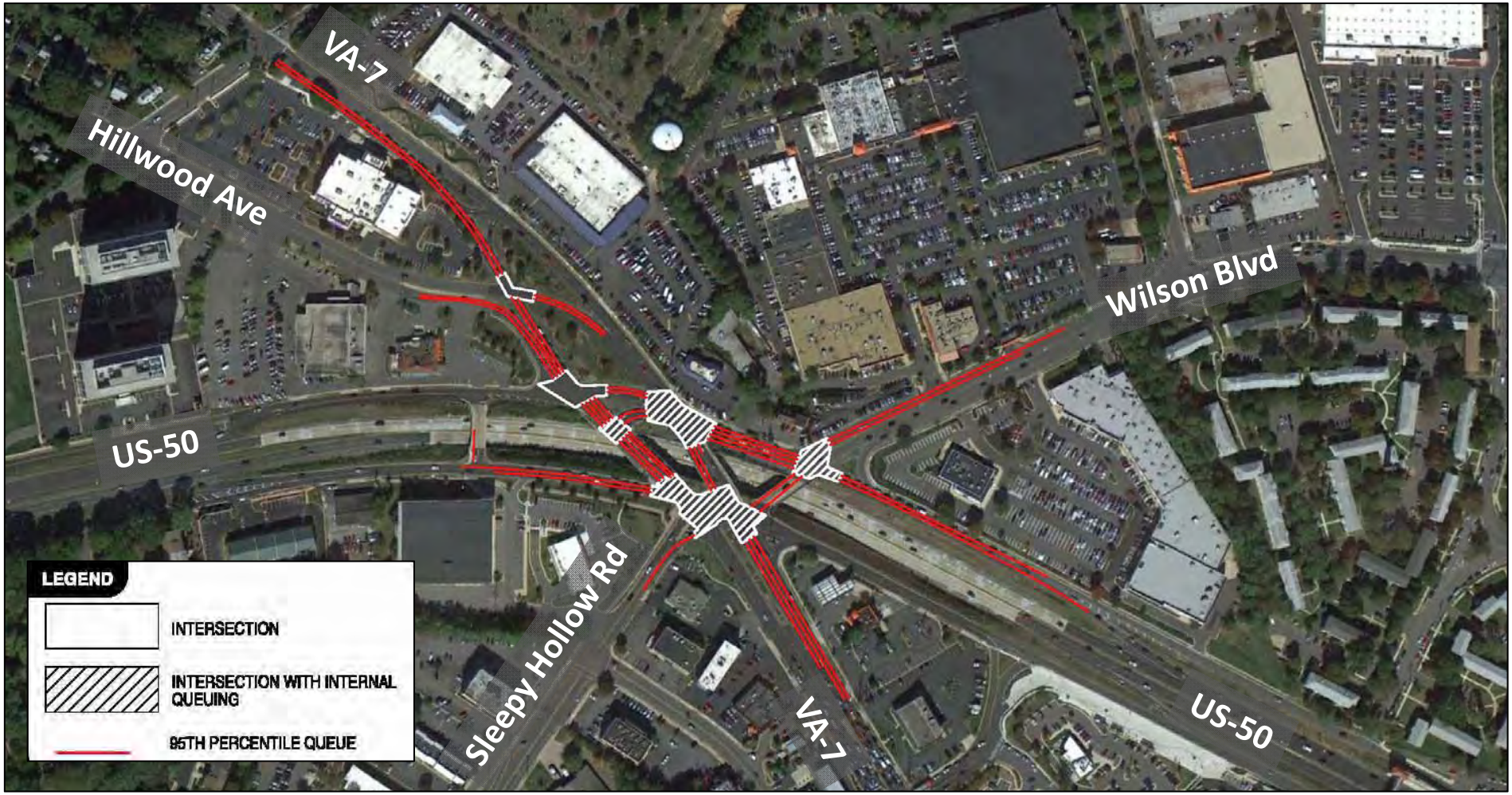
Travel Patterns PM Exit – VA-7 Eastbound

Level of Service for 19 Outer Intersections (PM Peak Hour)

Level of Service for Interchange Intersections (PM Peak Hour)

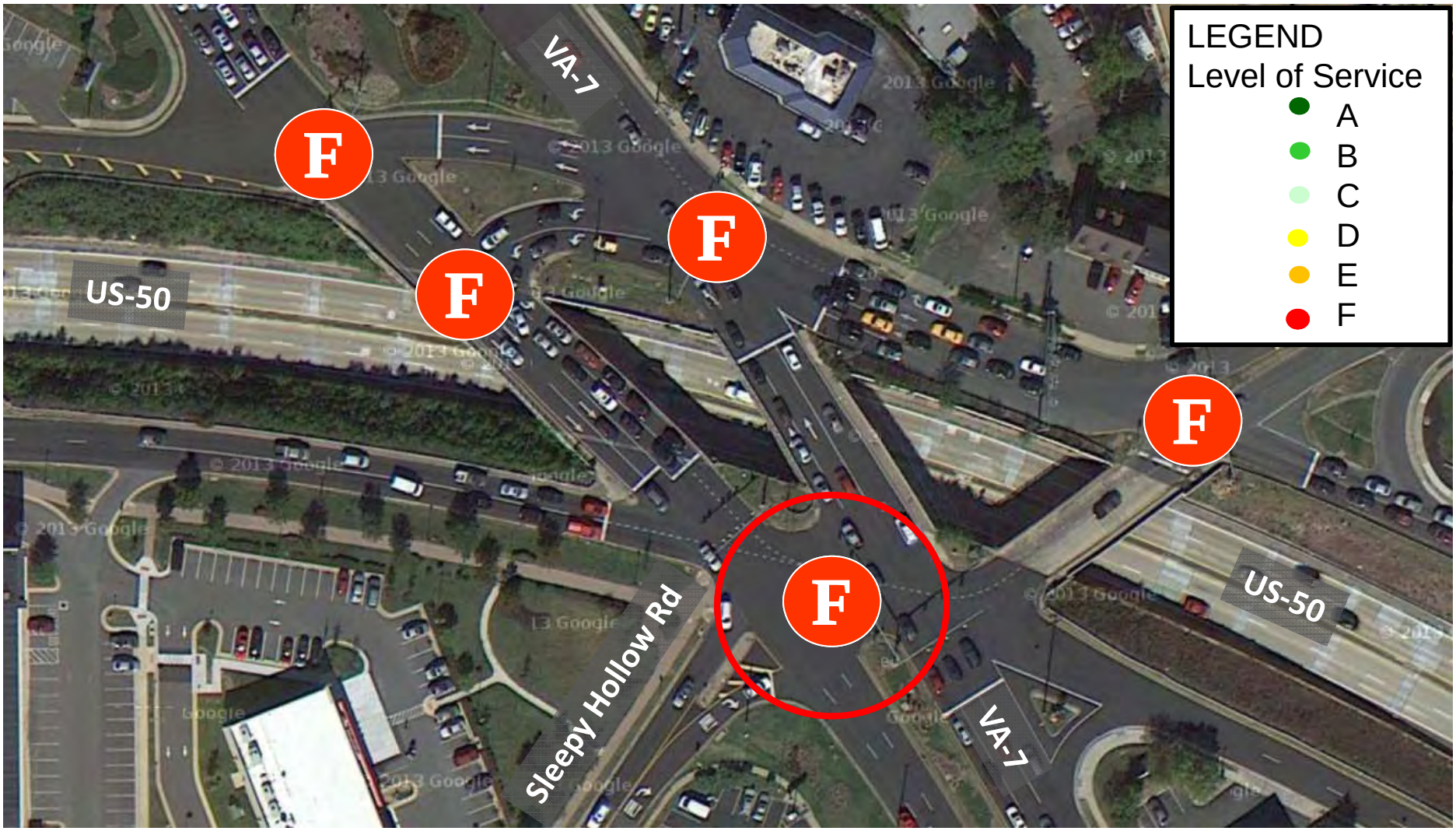


PM – Interchange Intersections – Queue Length

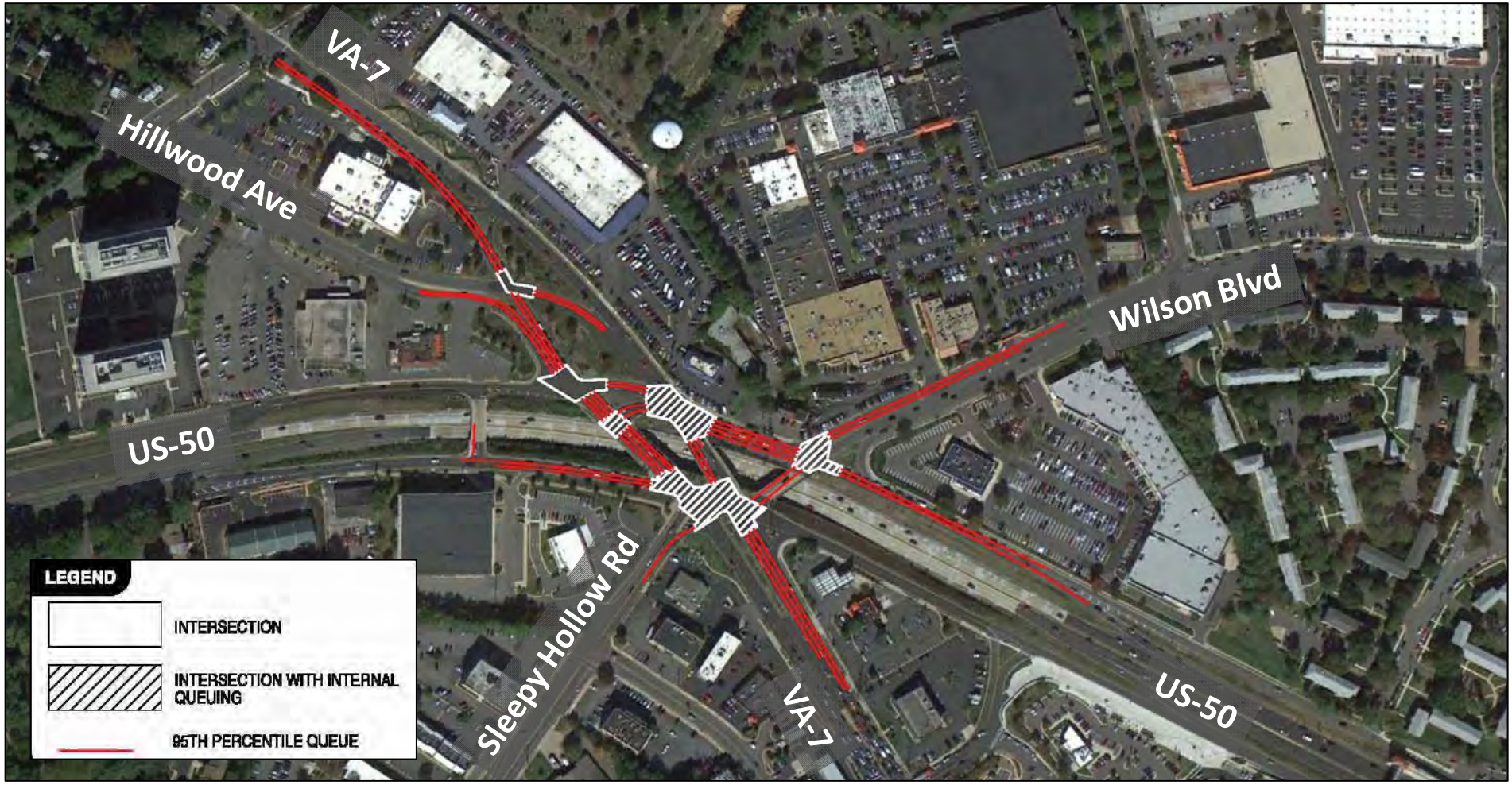


Level of Service for 5 Outer Intersections (Saturday Peak Hour)

Level of Service for Interchange Intersections (Saturday Peak Hour)



Saturday – Interchange Intersections – Queue Length



Some Observed Pedestrian and Bicycle Characteristics

- Based on field visit observations
- Little to no pedestrian traffic in Interchange area
- Some bicycle traffic in Interchange area
- Traffic discourages pedestrian/bicycle use
  - High speeds
  - Difficult crossings
  - Lack of infrastructure (sidewalks, bike lanes, crosswalks)

AM Peak Period Conclusions

- Origin-Destination
  - 85% is through traffic
  - Traffic on US-50 and VA 7 comprises 75% of total traffic
  - US-50 60/40 split in the eastbound direction
  - Leesburg Pike 60/40 split westbound, Broad Street 50/50 split

- Intersection Operations
  - Most of the delay occurs in the Interchange area – several intersections operate at LOS ‘F’
  - Long queues on westbound Leesburg Pike, EB Arlington Blvd, and in the Interchange area
  - Vehicles “block the box” at the Interchange, causing delay and queuing
  - US-50/Patrick Henry operates at LOS ‘E’
  - Roosevelt/Wilson operates at LOS ‘D’

PM Peak Period Conclusions

- Origin-Destination
  - 82.5% is through traffic
  - Traffic on US-50 and VA 7 comprises 72.5% of total traffic
  - US-50 55/45 WB split at Patrick Henry, 50/50 split at Cherry St
  - Leesburg Pike 60/40 split eastbound, Broad Street 50/50 split

- Intersection Operations
  - Most of the delay occurs in the Interchange area – several intersections operate at LOS 'F'. **PM is worse than AM period**
  - Long queues on eastbound VA 7 (back to Cherry St), WB Arlington Blvd, Wilson Blvd, and in the Interchange area
  - Vehicles "block the box" at the Interchange, causing delay and queuing
  - US-50/Patrick Henry operates at LOS 'F'
  - Roosevelt/Wilson and VA 7/Patrick Henry operate at LOS 'D'

Next Steps

- Produce final existing conditions traffic report
- Seven Corners Transportation Study – Phase II
  - Identify mitigation measures to address current traffic problems
  - Assess future land use scenarios
  - Identify medium and long-term solutions for the interchange using the O-D data.
- Questions?