



County of Fairfax, Virginia

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# Dulles Corridor Special Study Transportation Analysis

Presented to:  
Reston Master Plan Special Study Task Force

Presented by:  
Fairfax County Department of Transportation

June 12, 2012



# Presentation

- Current Work Effort
  - Land Use Scenarios
  - Roadway Networks Tested
  - Enhanced Street Network
  - Intersection Mitigations
- Transportation Impact Results
- Summary/Next Steps
- General Discussion: Questions/Task Force Input

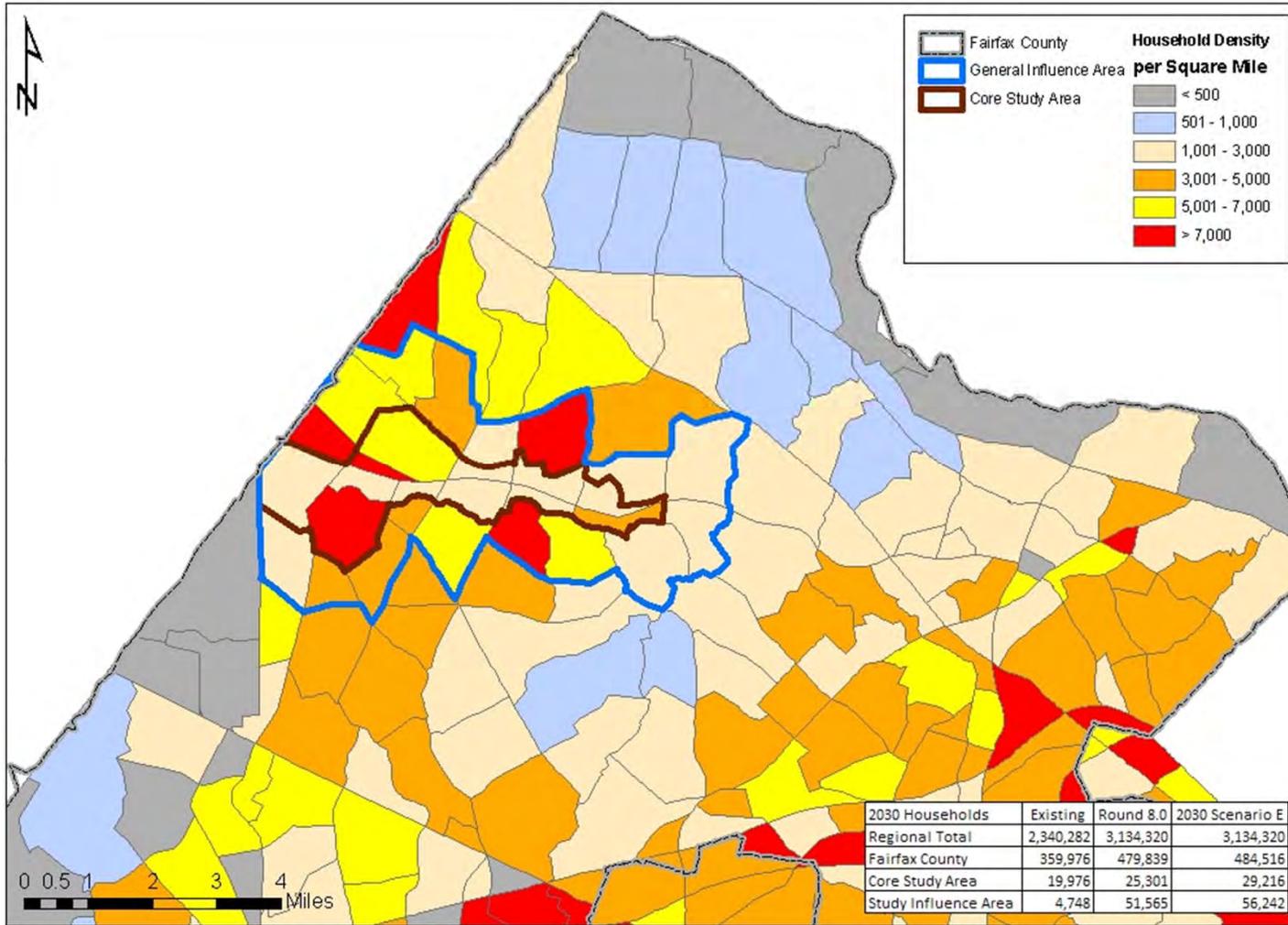


## Scenarios and Network

- Scenario E: Land use scenarios compared to existing and future 2030 base (Round 8.0)
- Network:
  - Partial Build Network:
    - Transportation Plan Map Roadway Improvements
    - Soapstone Overpass
    - Enhanced Street Network
    - Intersection Mitigations
  - Full Build Network:
    - 3 Additional Crossings of the Toll Road
      - South Lakes Drive
      - Town Center Parkway
      - Rock Hill Road
    - Grade Separation at Sunrise Valley Drive and Fairfax County Parkway

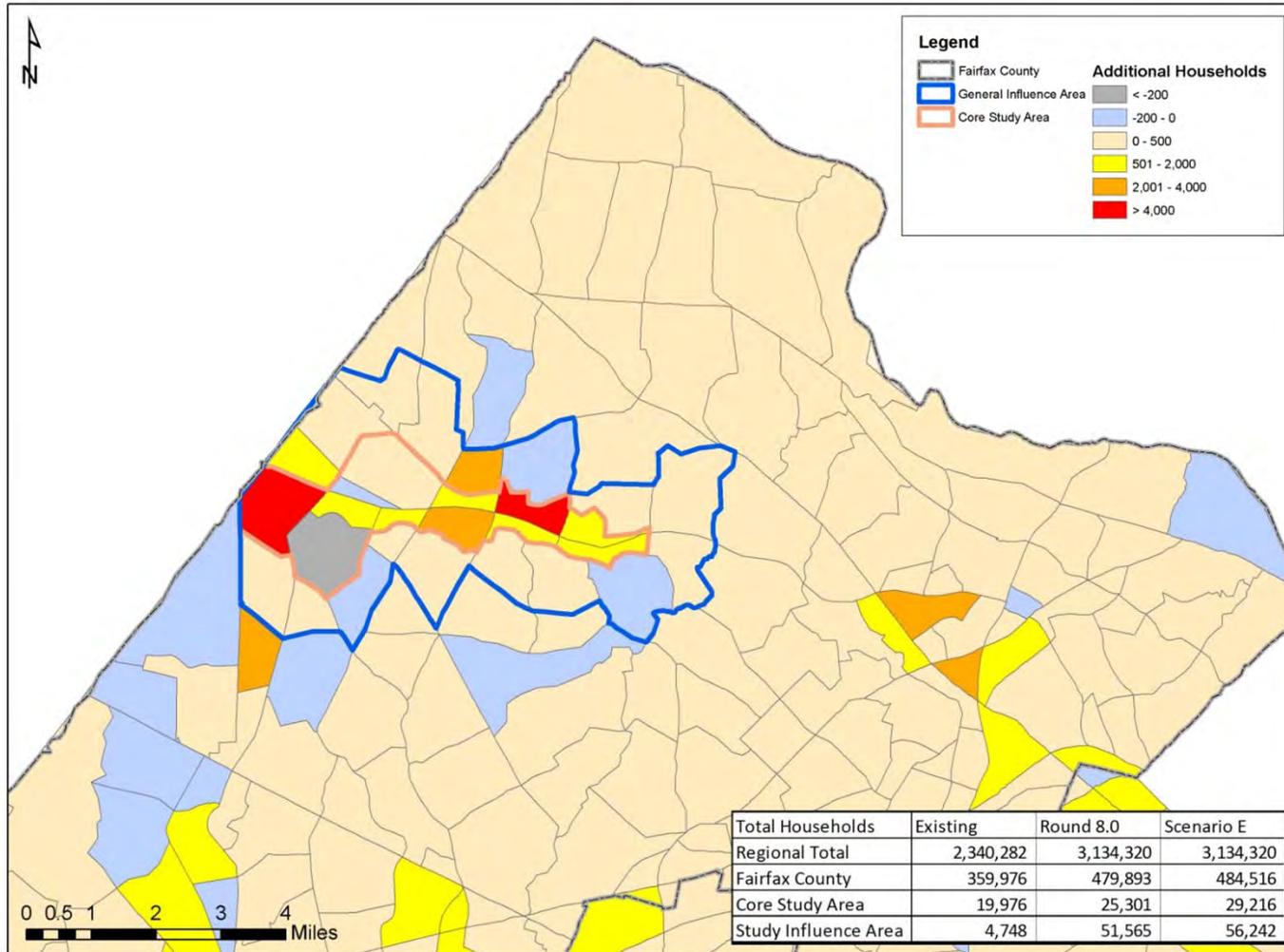


# Future Household Density (2030)



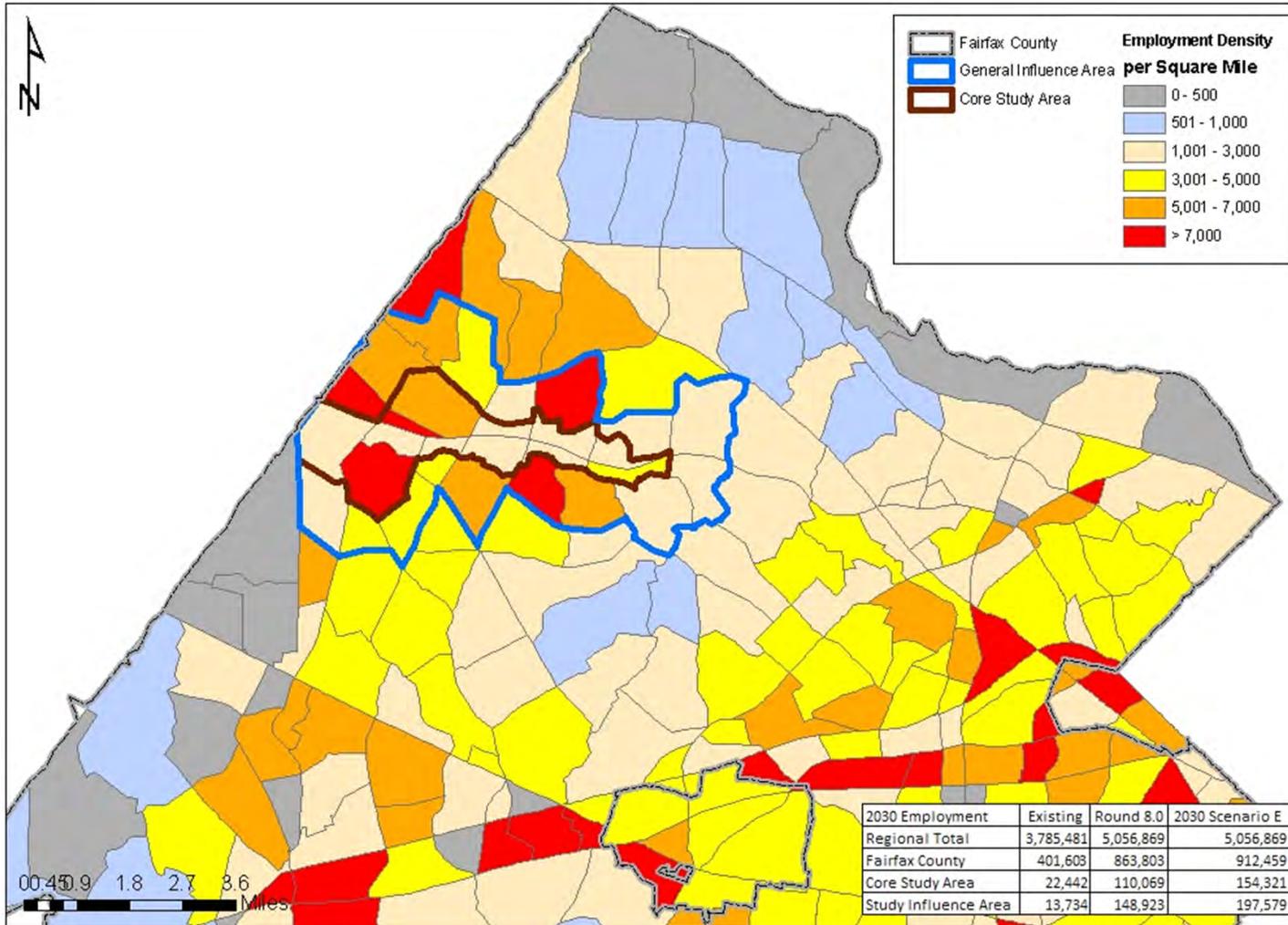


# Scenario E Increase in Households (Existing to 2030)



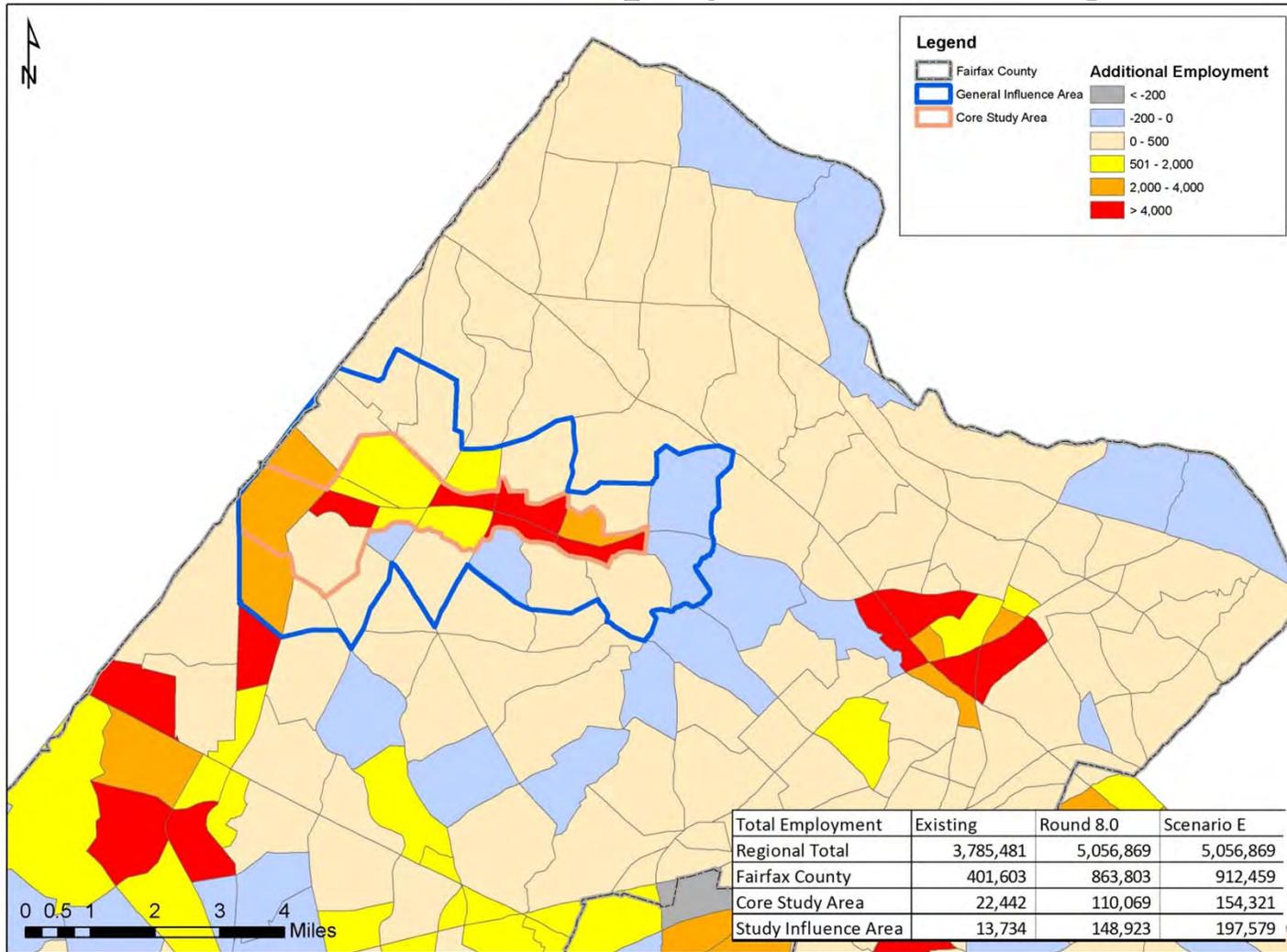


# Future Employment Density (2030)





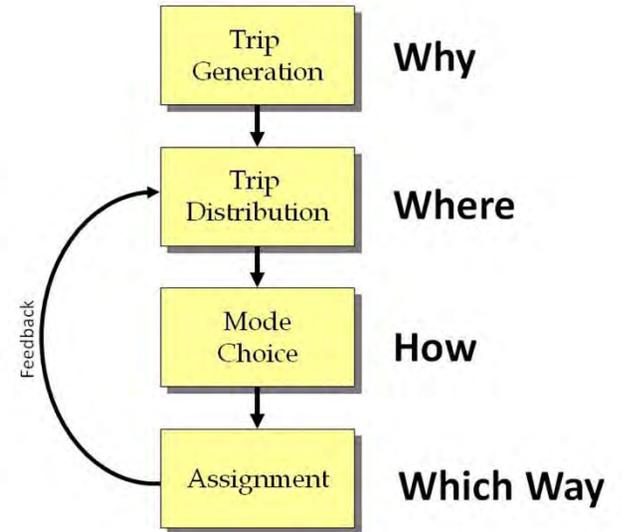
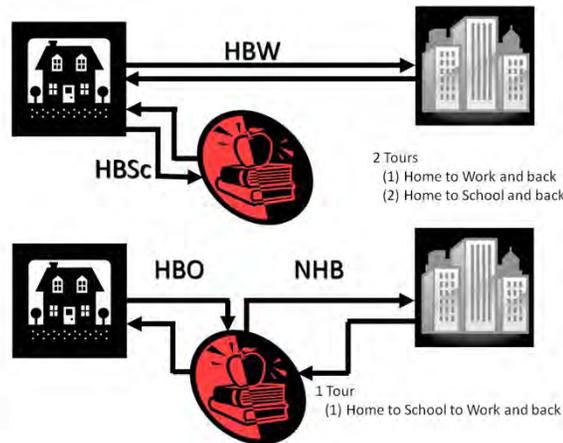
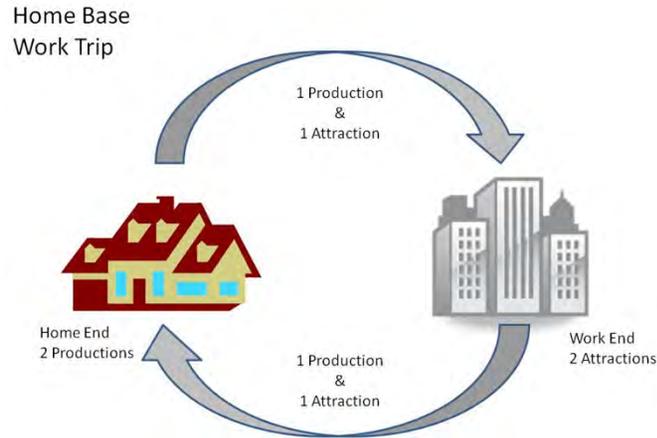
# Scenario E Increase in Employment (Existing to 2030)





# Travel Demand Process

- Develop Person Trips
- Daily Activity
- Model – Mathematical Representation
- Mode Choice
  - Transit
  - Carpooling
  - Drive Alone
- Not Using ITE Trip Rates





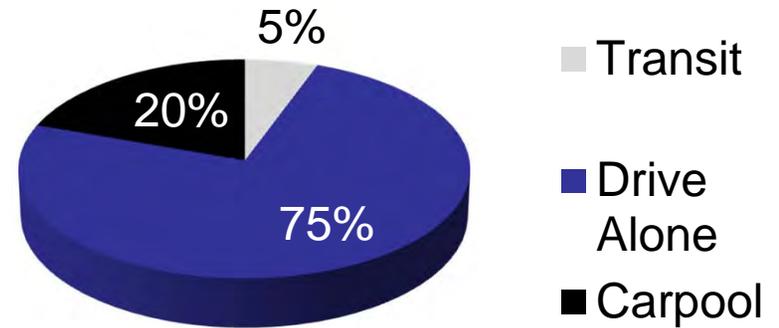
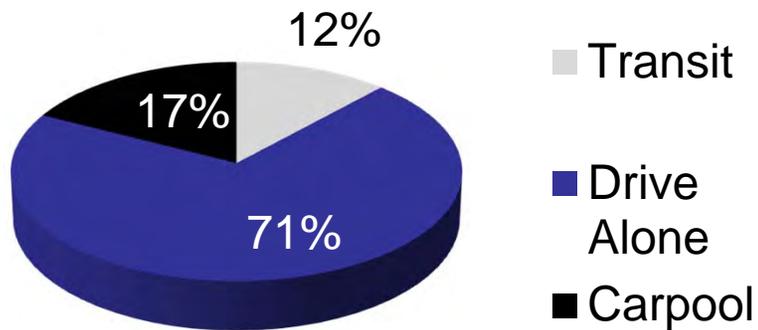
# Mode Choice Work Trips

From Home

To Office

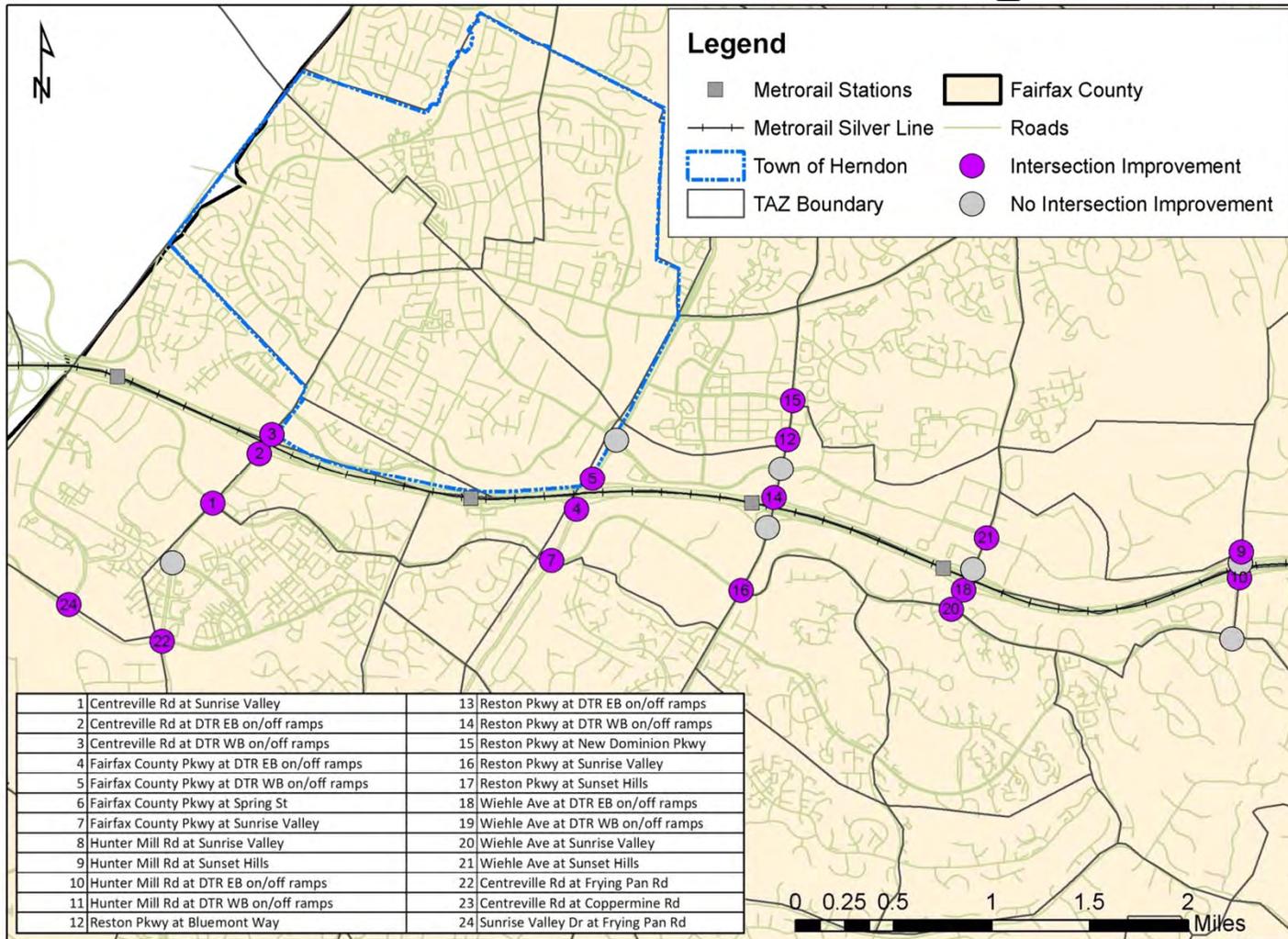
Year 2030 Scenario E Land Use Forecast

Year 2030 Scenario E Land Use Forecast



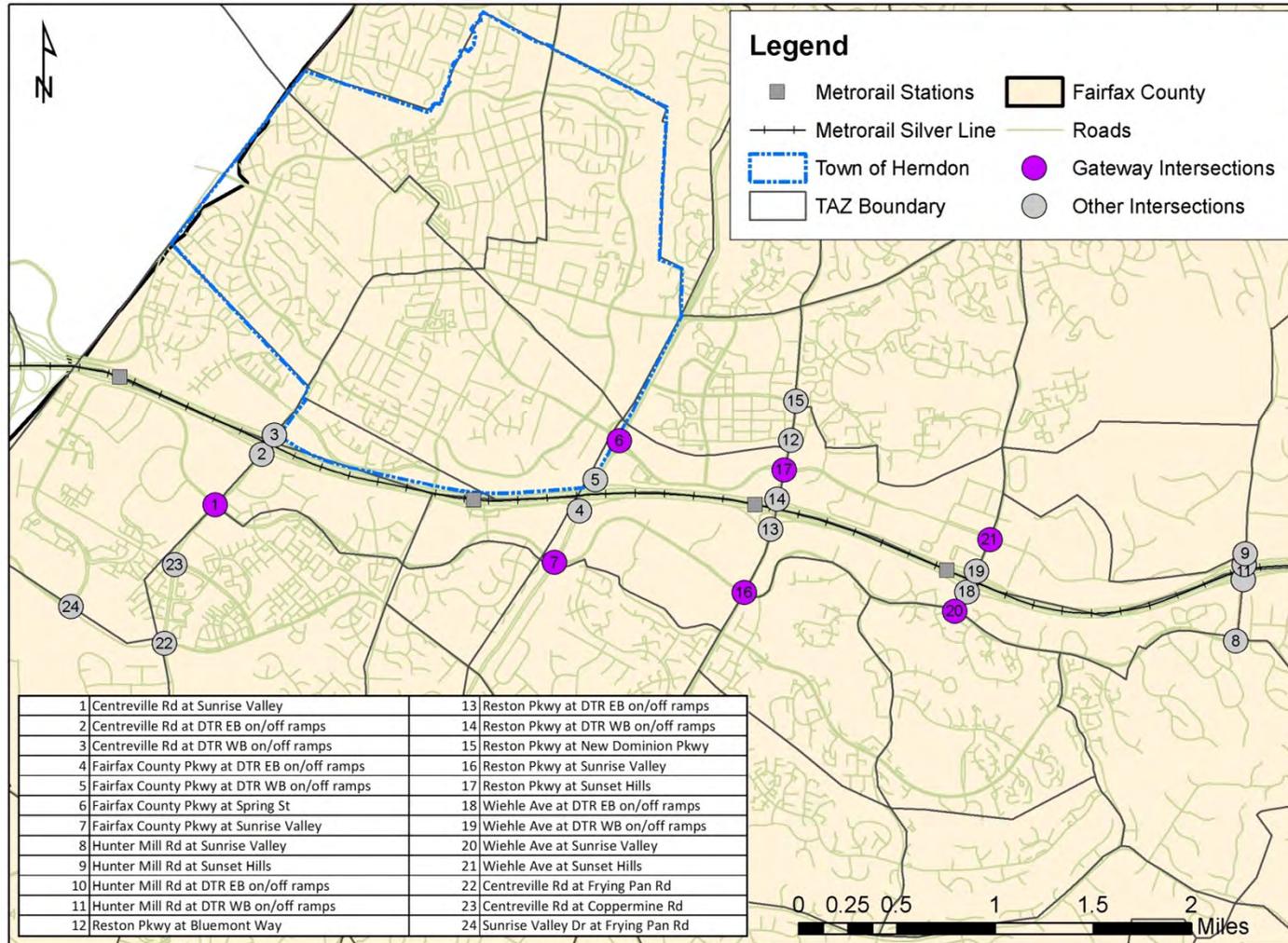


# Location of Intersection Mitigations



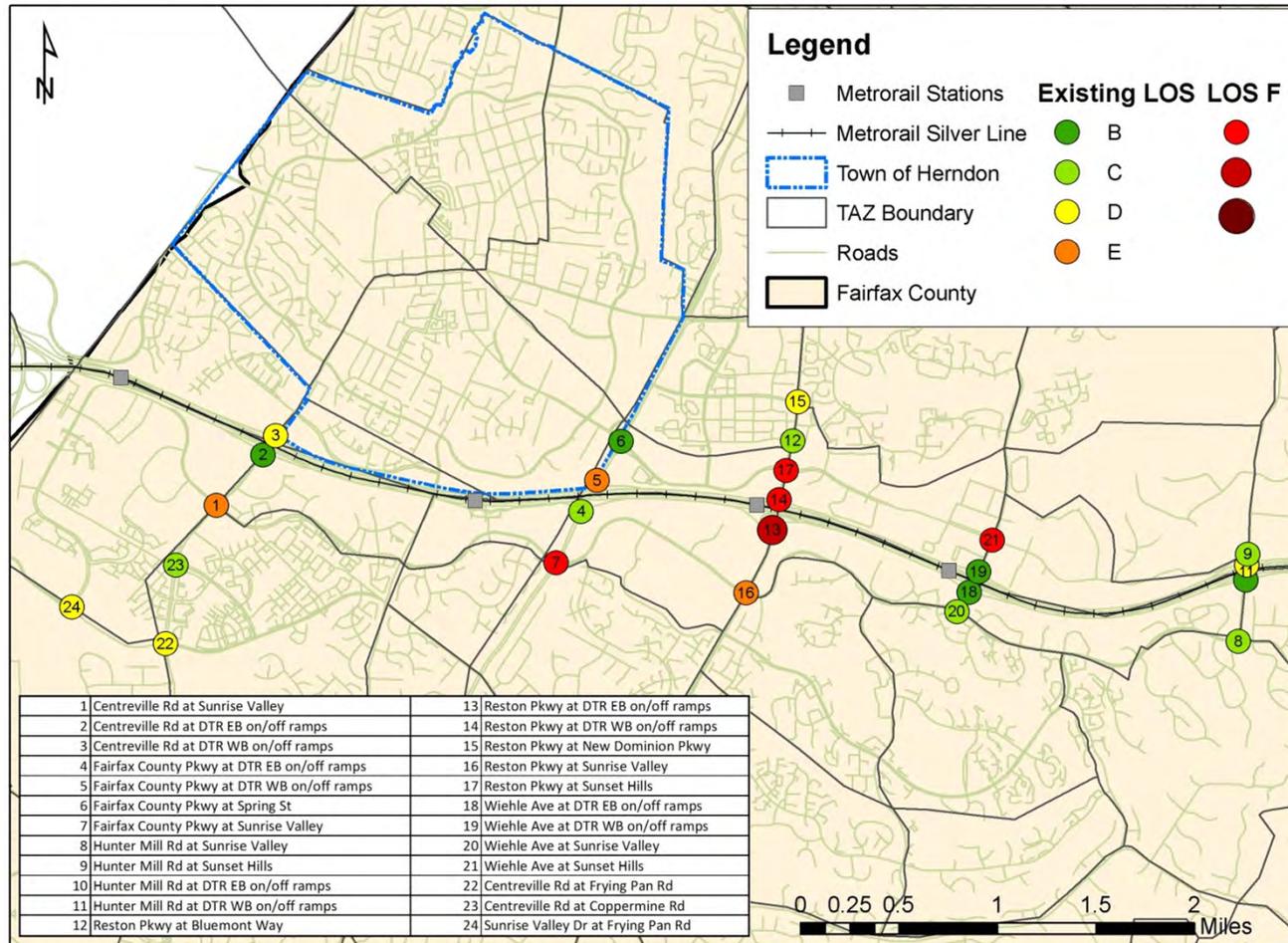


# Gateway Intersections



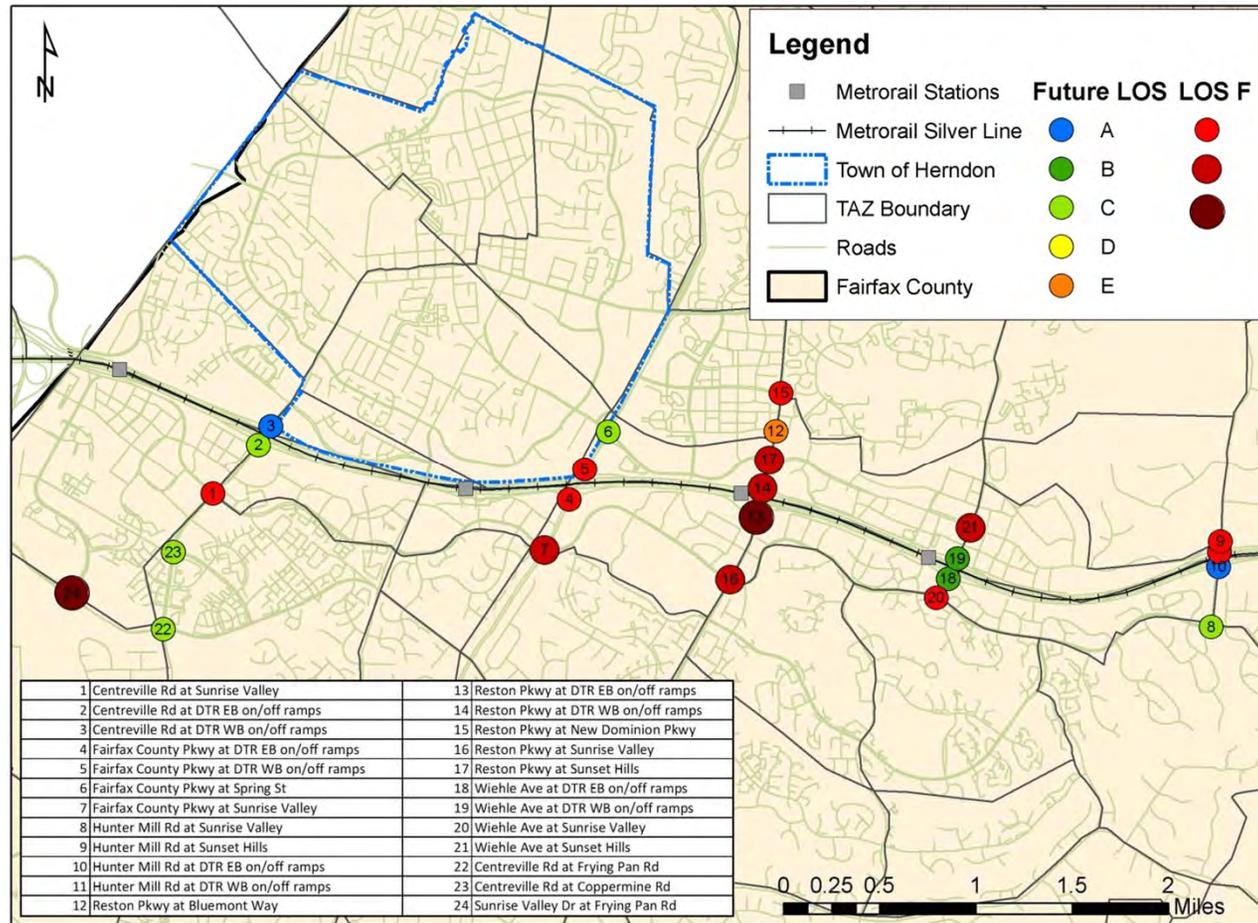


# Existing Evening Peak Intersection Level of Service



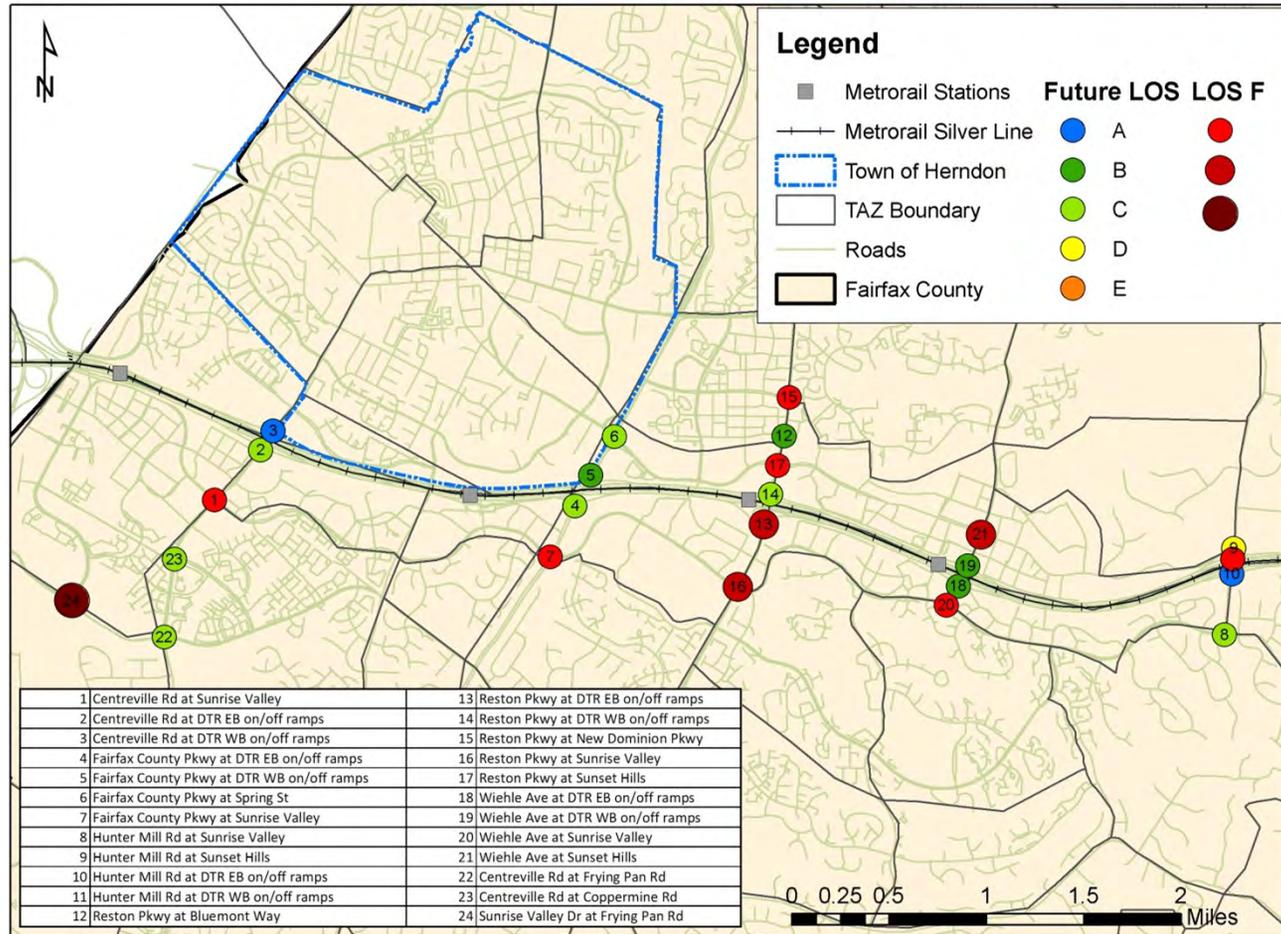


# Future Evening Peak Intersection Level of Service – Partial Build Network – Scenario E



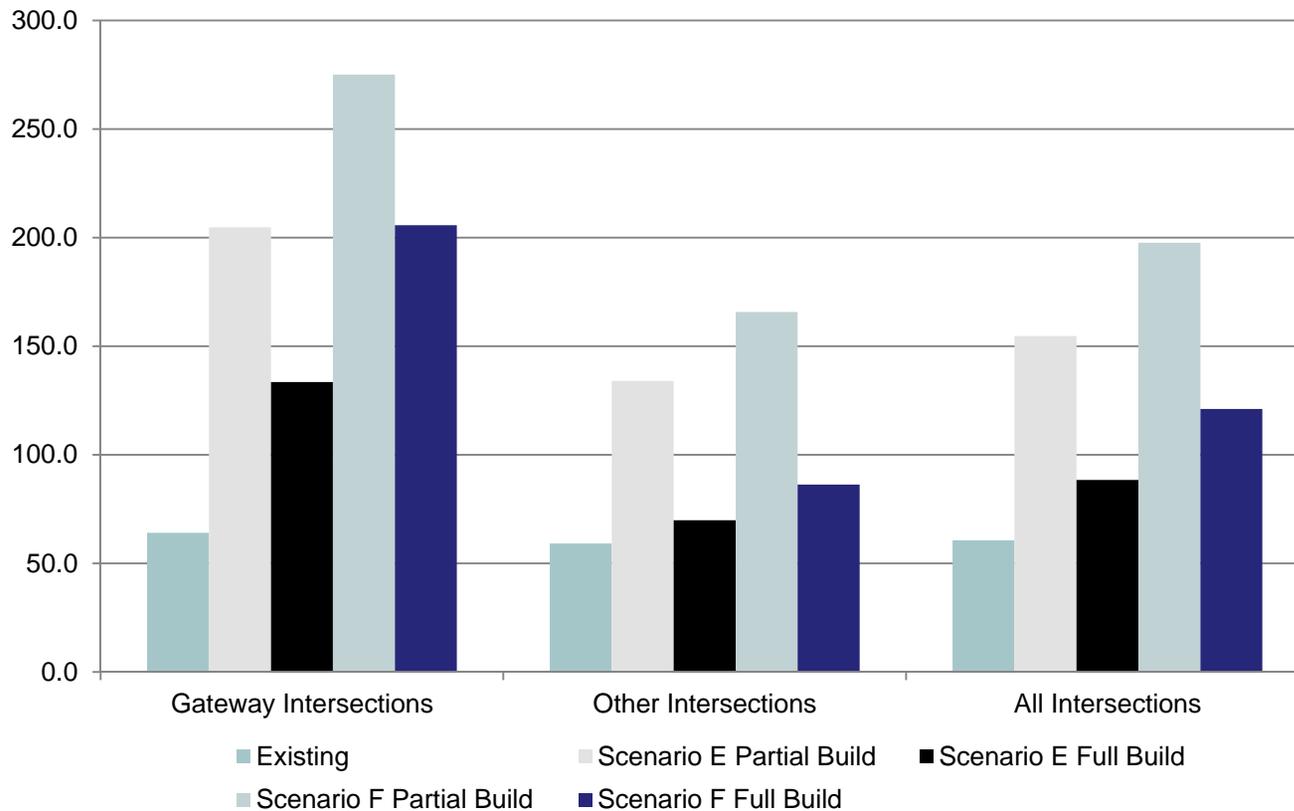


# Future Evening Peak Intersection Level of Service – Full Build Network – Scenario E





# Average Peak Period Intersection Delay



Scenario F has substantially higher intersection delay and lower Level of Service than Scenario E in both the Partial Build and Full Build.



# Fairfax County Parkway Level of Service

Existing



Future Partial Build



Future Full Build

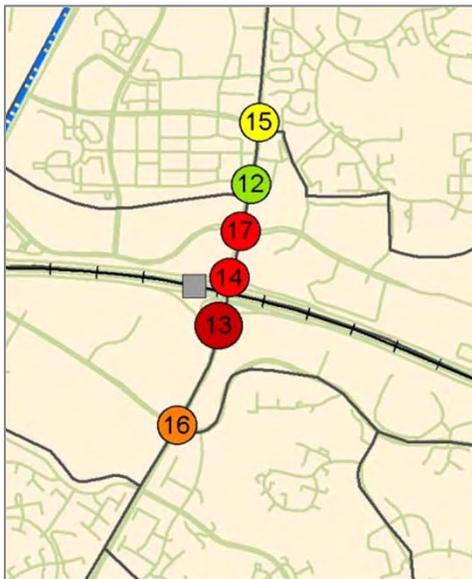


In the future (2030), intersection LOS at these locations gets worse at all four of these intersections. The improvements in the Full Build scenario, including grade separation of Intersection #7, provides intersection LOS as good or better than the existing conditions.

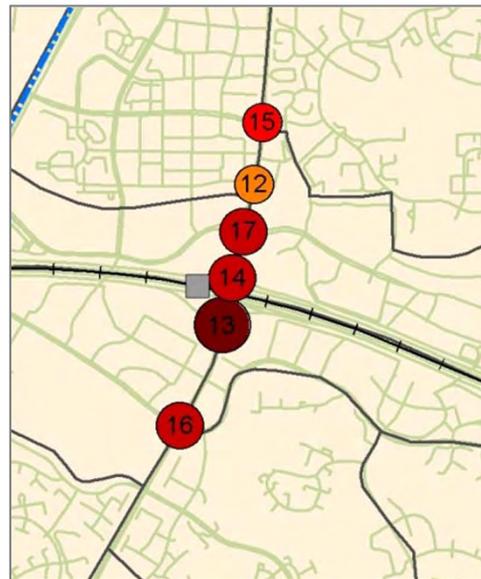


# Reston Parkway Level of Service

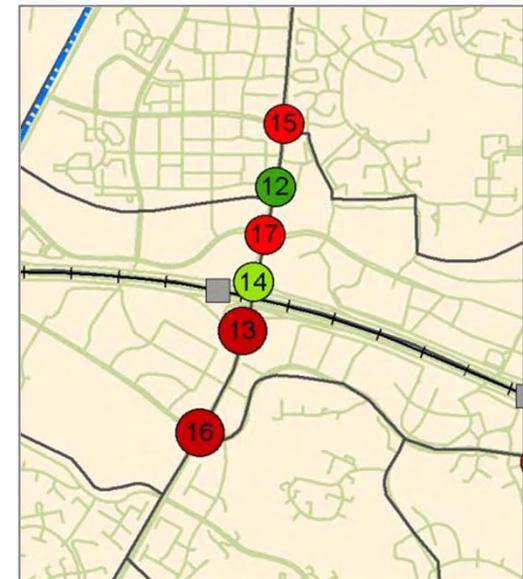
Existing



Future Partial Build



Future Full Build

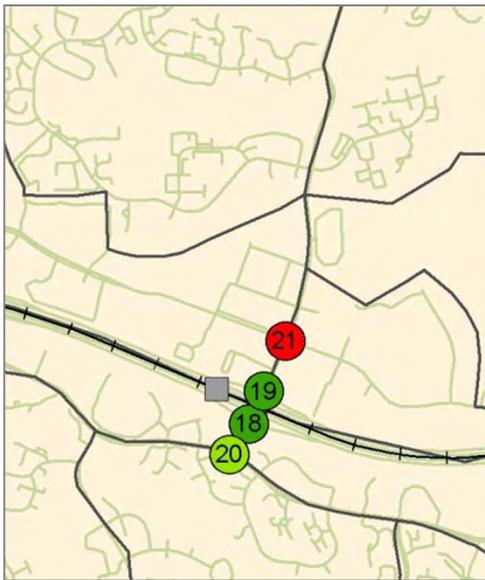


In the future (2030), intersection LOS at these locations gets worse at all of these intersections, with all intersections at LOS E or worse. The improvements in the Full Build scenario provide some congestion relief, improving the LOS at 4 of the 6 intersections.

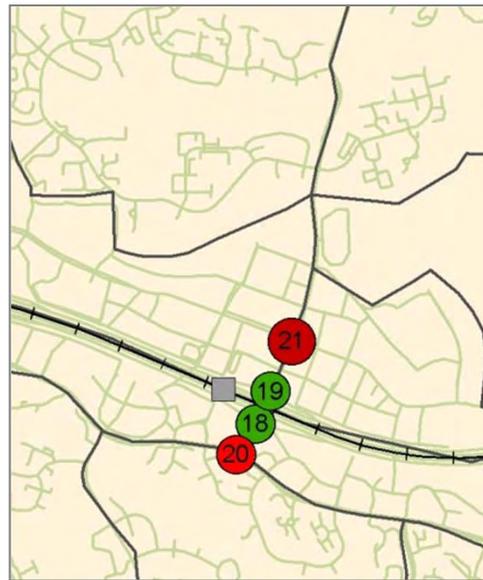


# Wiehle Avenue Level of Service

Existing



Future Partial Build



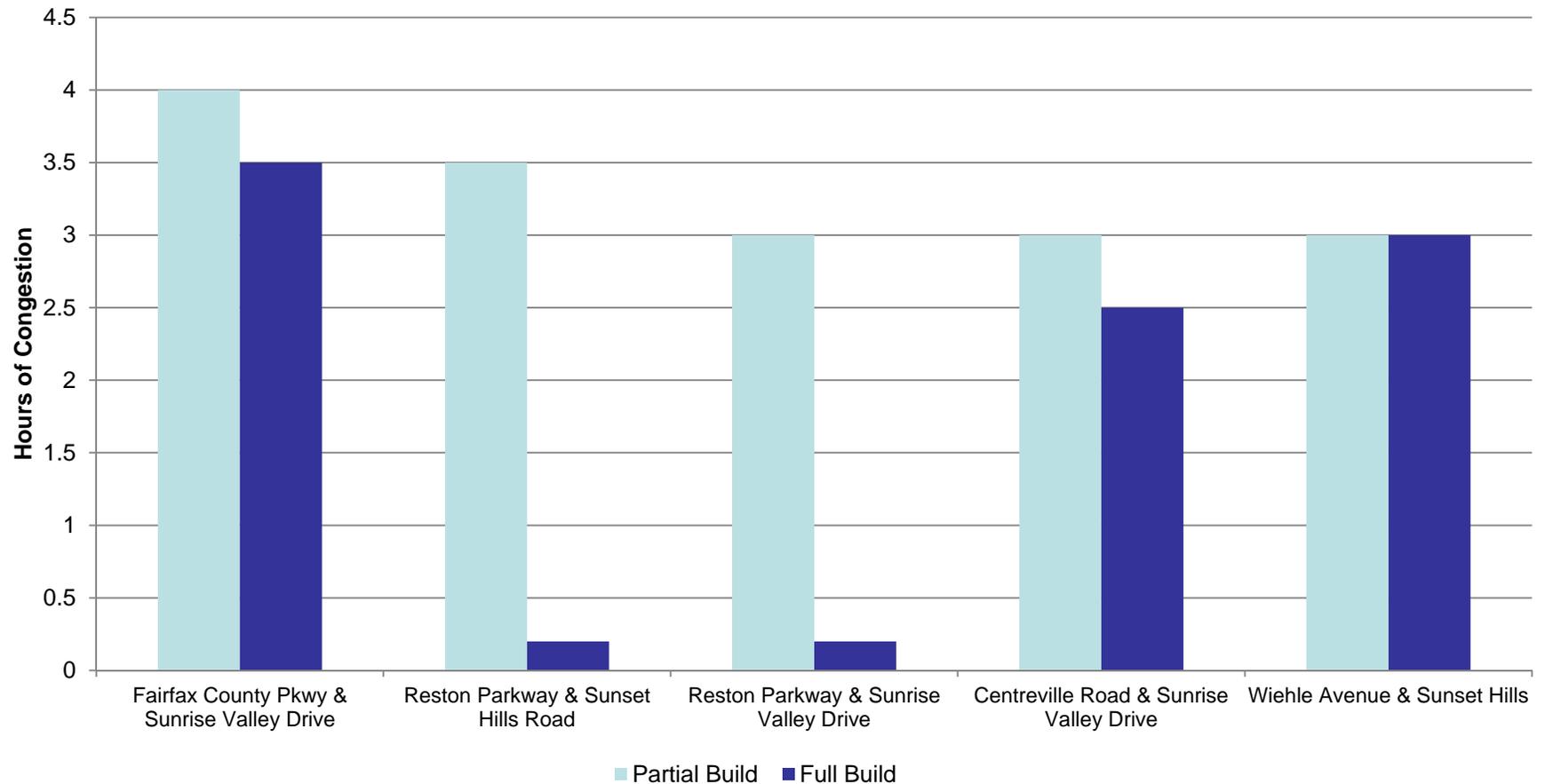
Future Full Build



In the future (2030), LOS at the intersections of Wiehle Ave with Sunrise Valley Dr (#20) and Sunset Hills Rd (#21) get worse. The improvements in the Full Build Scenario do not significantly alter the LOS.



## Congested Hours of Delay at Key Intersections



Full Build on this slide does not include the Fairfax County Parkway & Sunrise Valley Drive grade separation. The grade separation reduces congested hours of delay to under an hour.

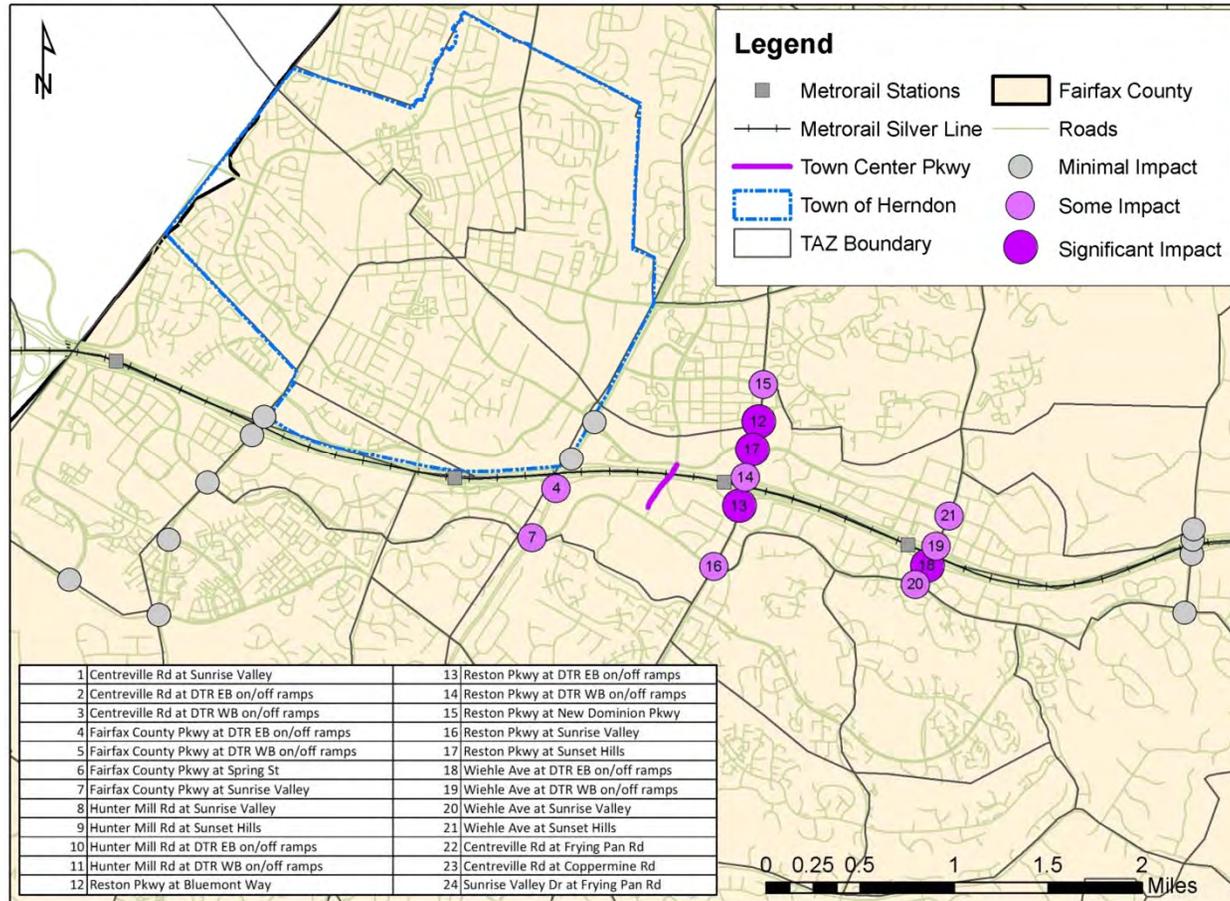


## Impacts of Individual Full Build Improvements

- Four Major Improvements were tested individually:
  - Town Center Parkway Underpass
  - Grade Separation at Fairfax County Pkwy and Sunrise Valley Dr
  - South Lakes Crossing
  - Rock Hill Overpass
- Highlighted locations where changes in intersection volumes are forecast
- New LOS were not calculated



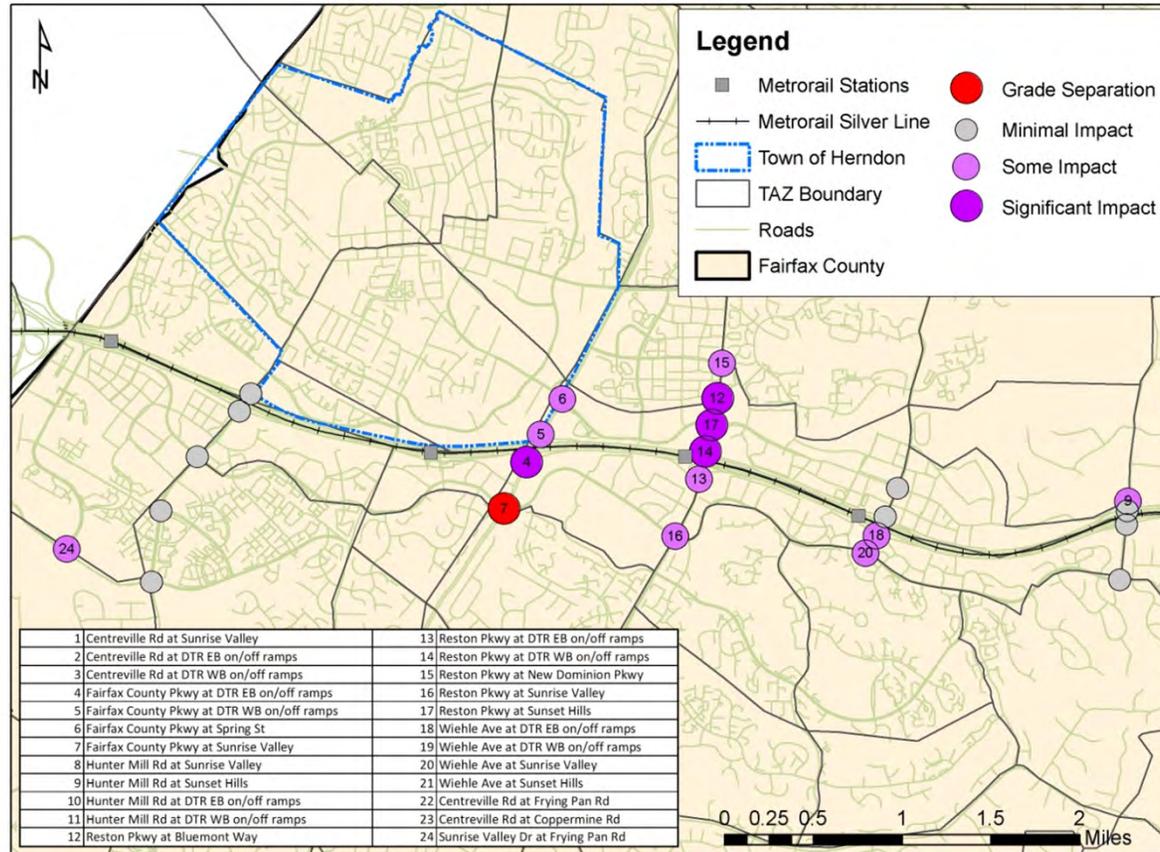
# LOS Impacts of Town Center Pkwy Underpass



The Town Center Parkway Underpass has the greatest improvements on the largest number of intersections in the study area, especially along Reston Parkway and Wiehle Avenue



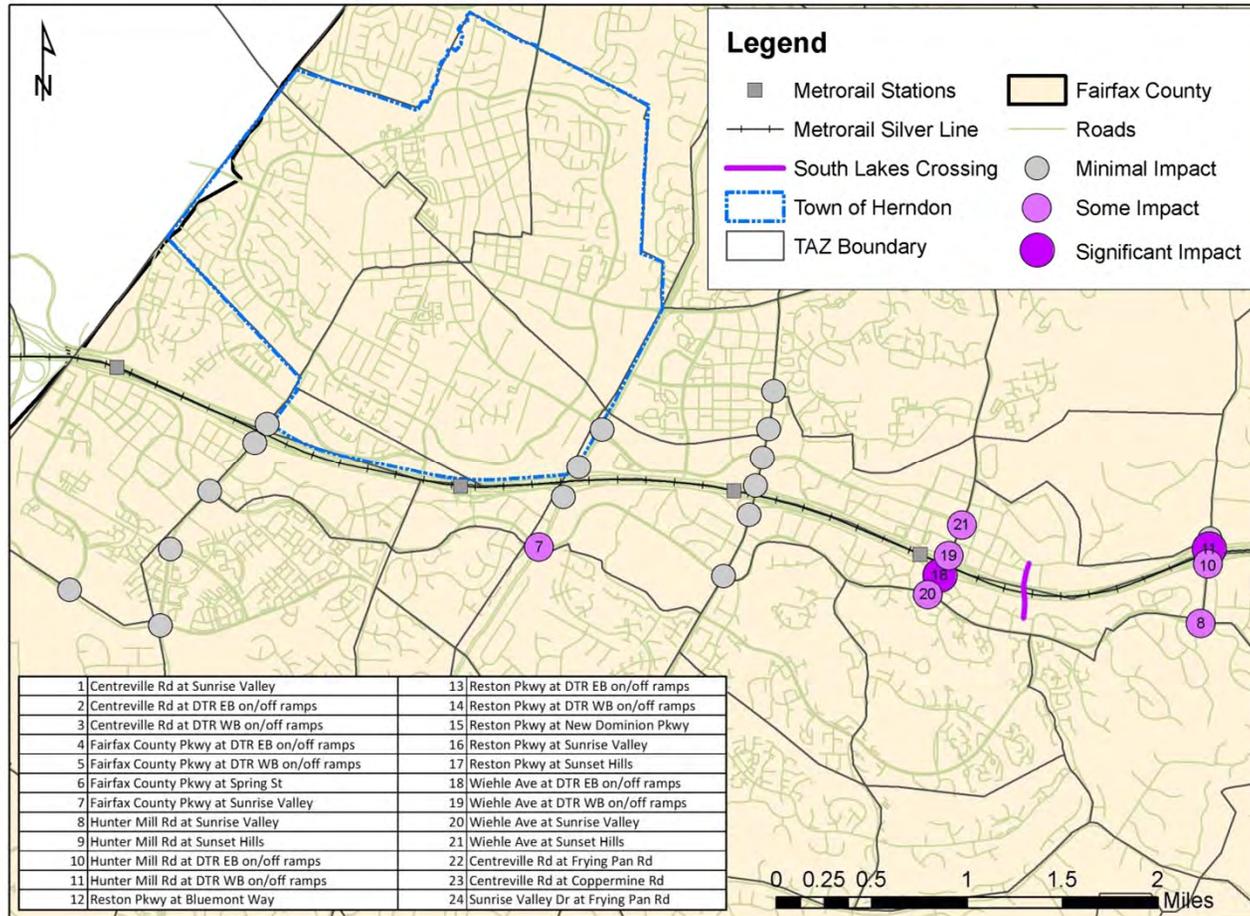
# LOS Impacts of Grade Separation



The grade separation of this intersection significantly improves its LOS while increasing traffic flow through the intersection and other adjacent intersections. Major impacts occur along Fairfax County Pkwy and Reston Pkwy.



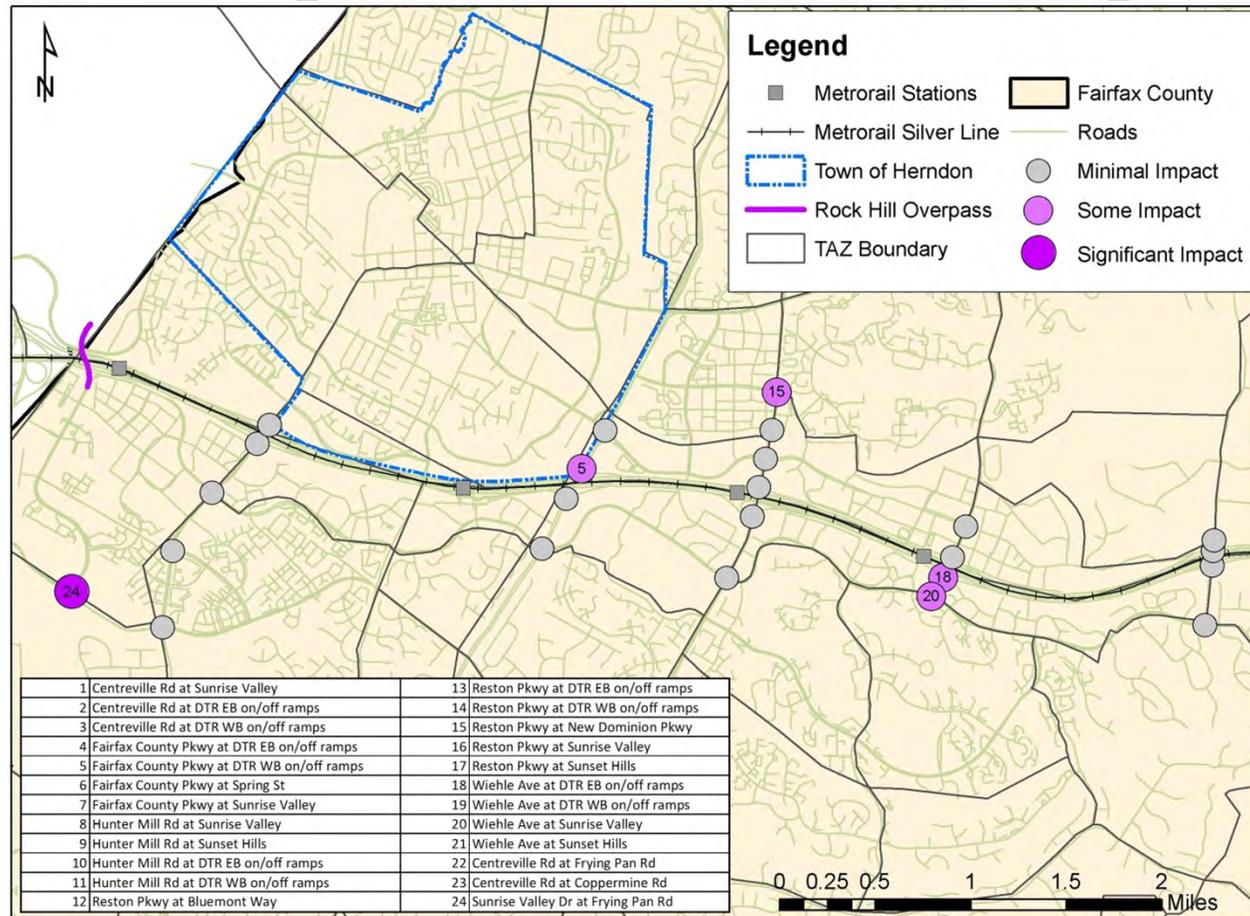
# LOS Impacts of South Lakes Crossing



The South Lakes crossing is forecast to have moderate improvements primarily at intersections along Wiehle Avenue and Hunter Mill Rd.



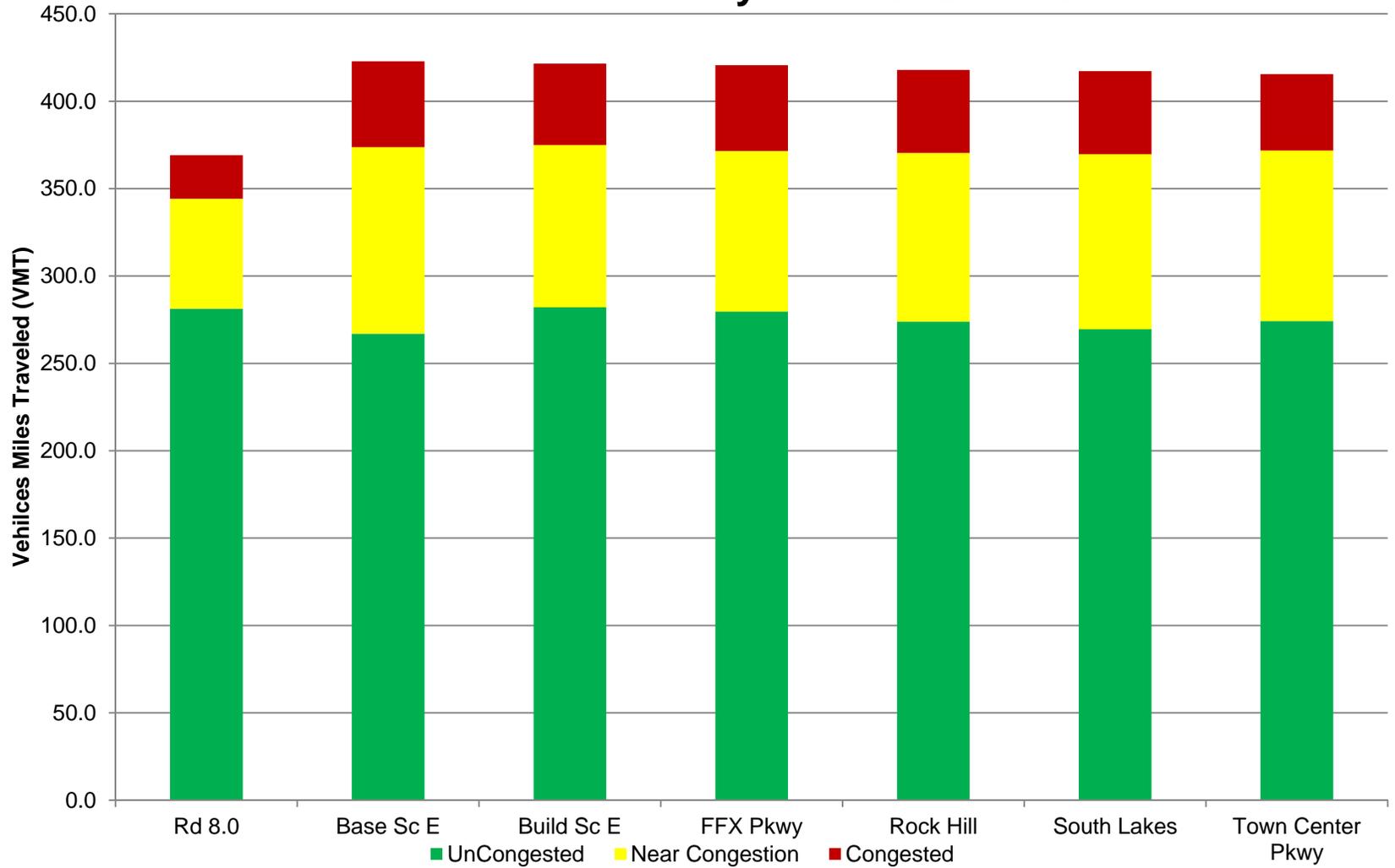
# LOS Impacts of Rock Hill Overpass



The Rock Hill Overpass is forecast to have mostly moderate improvements on intersections throughout the study area, but may have greater impacts to the west and along VA 28.

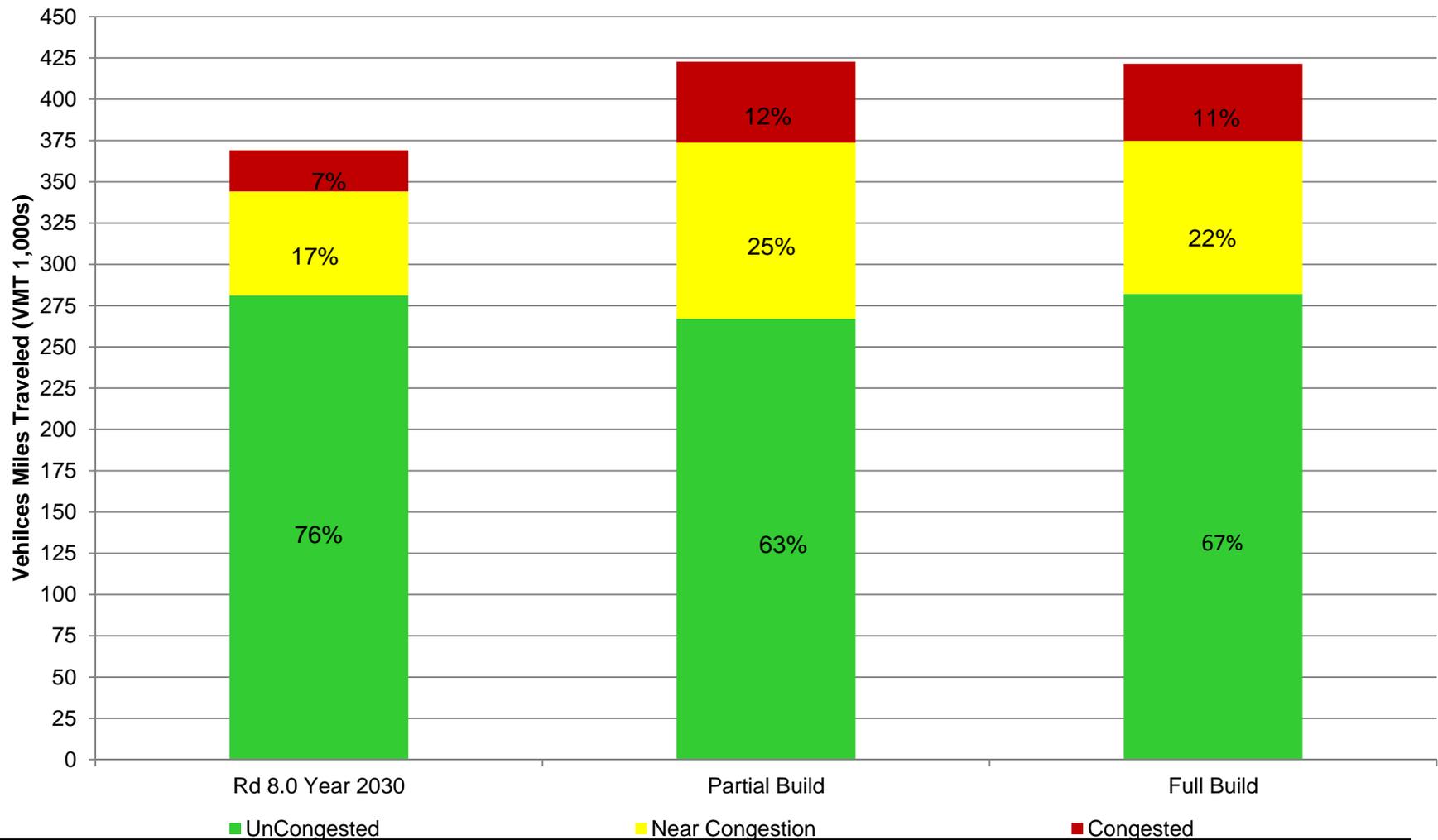


### PM Peak Period VMT by Level of Service





# Evening Peak Period Congested VMT





## Summary

- Scenario E has increased land density significantly above the Round 8.0 Cooperative Forecast. There are 12% more trips produced in the study area and 36% more trips attracted to the study area.
- The enhanced street network and intersection mitigation improvements increase mobility in the Partial Build and Full Build. These improvements alone are not enough to mitigate the transportation impacts.
- The major Full Build roadway improvements (overpasses, underpass, and grade separation) significantly improve the highway network performance over the Partial Build.



## Next Steps

- FCDOT staff to further assess the results of the traffic analysis
- FCDOT and DPZ staff to review intersection information to better evaluate land use zone density locations and use mix
- Concurrent with these assessments, FCDOT and DPZ to discuss results of transportation analysis in terms of potential refinements of Scenario E land use and transportation network



# General Discussion/Questions/ Task Force Input