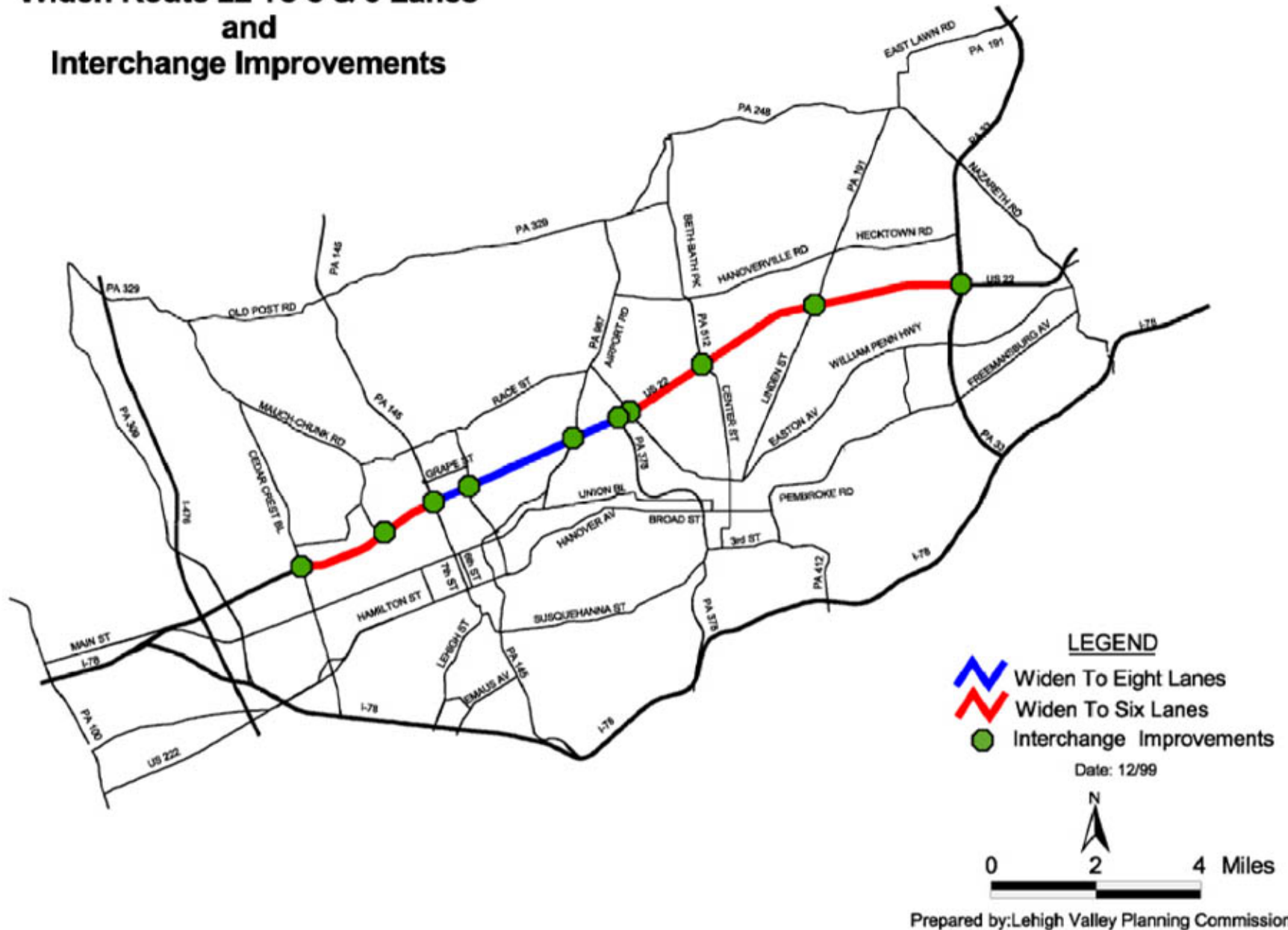


SCENARIO A02
OPTIMIZE WIDENING OF U.S. ROUTE 22 FROM CEDAR CREST BLVD TO
ROUTE 33 TO 6 & 8 LANES AND INTERCHANGE IMPROVEMENTS

This scenario studies the effects of widening U.S. Route 22 to six lanes from Cedar Crest Blvd. in Lehigh County to Route 145/MacArthur Road, widening to eight lanes from Route 145/MacArthur Road to Schoenersville Road, and widening to six lanes from Schoenersville Road to Route 33 in Northampton County. Interchanges along U.S. Route 22 are also upgraded between these two end points.

Scenario A02 Widen Route 22 To 8 & 6 Lanes and Interchange Improvements



SCENARIO A02: MEASURES OF EFFECTIVENESS RELATING TO PROJECT NEEDS

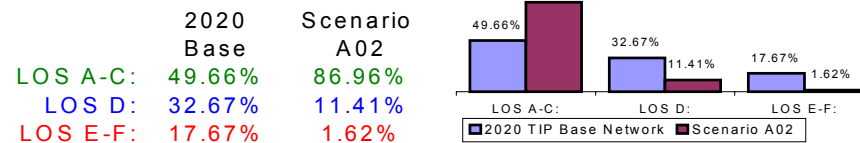
Improve Safety on U.S. Route 22

In the U.S. Route 22 corridor, most interchange designs do not meet current design standards (*A Policy on Geometric Design of Highways and Streets, 1994 AASHTO Greenbook and PennDOT Design Manual, Part 2, Highway Design; Publication 13M, September 2000*). The Needs Report found that over 65 percent of the crashes occurred at interchange areas. Along with the improvement in the overall interchange configuration to meet current design standards, the length of acceleration and deceleration lanes at interchange ramps will also increase with the planned interchange improvements in this scenario. Additional lanes added to the mainline should accommodate more traffic with wider gaps between vehicles. This will allow more room to maneuver a vehicle should traffic conditions change unexpectedly. Ultimately, this should result in crash reduction.

IMPACT: Positive

Reduce Congestion on U.S. Route 22

**Percent of Vehicle Miles of Travel (VMT) by Level Of Service (LOS)
Route 22- PM Peak Hour**

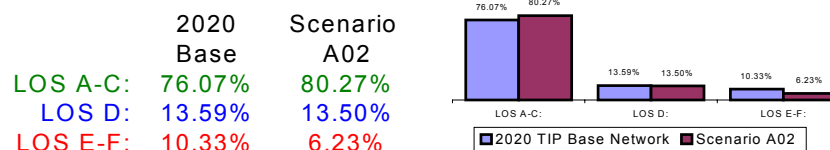


- Comparing the 2020 TIP base year with six and eight-lanes on U.S. Route 22, the level of travel occurring desirable traffic conditions of LOS A through C in the afternoon peak hour has improved by 37 percent and a significant reduction from 18 percent to less than 2 percent is achieved in the breakdown traffic conditions of LOS E and F on U.S. Route 22.

IMPACT: Positive

Recommended improvements must not increase congestion on regional road network

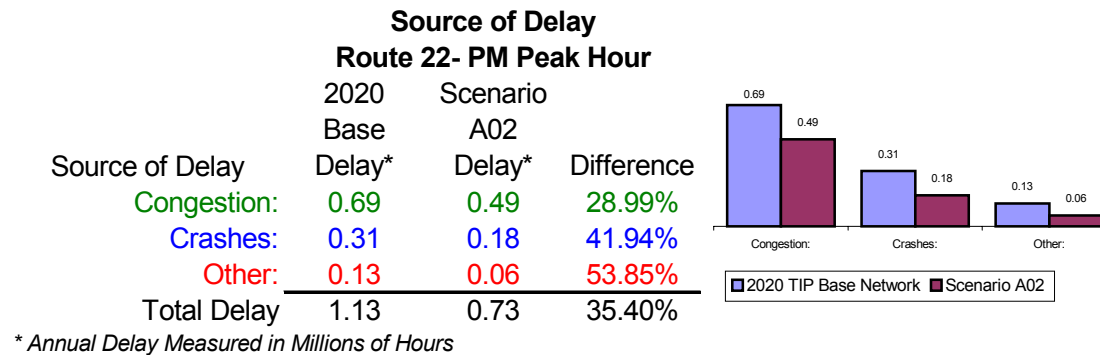
**Percent of Vehicle Miles of Travel (VMT) by Level Of Service (LOS)
All Lehigh Valley Region Roads - PM Peak Hour**



- The level of travel occurring under desirable traffic conditions of LOS A through C in the afternoon peak hour has improved by 4 percent and a reduction of 4 percent is achieved in the breakdown traffic conditions of LOS E and F in the Lehigh Valley region.

IMPACT: Positive

Reduce Impacts of incidents on U.S. Route 22 traffic flow



- The source of delay due to various types of incidents is used to gauge the progression of traffic on U.S. Route 22 and is measured in millions of hours per year for this scenario. Annual delay caused by congestion has decreased by 29 percent on U.S. Route 22, delay due to crashes has also decreased by 42 percent, and delay due to breakdowns decreased more than 54 percent on U.S. Route 22.
- Total delay due to all incidents on U.S. Route 22 has been reduced by approximately 35 percent from the “no-build” condition.

IMPACT: Positive

Support Land Use and Redevelopment Goals of Regional Comprehensive Plan

Important goals stated within the Lehigh Valley Regional Comprehensive Plan such as economic development, constructing highways and bridge improvements that are compatible with the built and natural environments and farmland preservation are preserved with the implementation of this scenario . It encourages urban redevelopment of facilities within the cities by improving a major arterial that will provide safe and efficient access and movement of traffic to and from these major traffic generators. Conversely, implementing this scenario will also help to discourage undesirable growth from areas recommended for rural development in the regional comprehensive plan by not improving access.

IMPACT: Positive

FINDINGS/CONCLUSIONS

This scenario eliminates major congestion areas and therefore reduces delay on U.S. Route 22 as well as in the entire Lehigh Valley region. The interchange improvements along with the widening to eight lanes will have the added benefit of safety and reduction of delay due to incidents. This scenario meets all five project needs.